



RECEIVED

ED

## SEQUENCE LISTING

TECH CENTER 1600/2900

TECH CENTER 1600/2900

RECEIVED

AUG 31 2000

TECH CENTER 1600/2900

5 &lt;110&gt; Gure, Ali

Stockert, Elisabeth

Scanlan, Matthew

10

Jager, Dirk

Old, Lloyd

15

Chen, Yao-Tseng

&lt;120&gt; SMALL CELL LUNG CANCER ASSOCIATED ANTIGENS AND USES THEREOF

20

&lt;130&gt; L0461/7073

25

&lt;140&gt; US 09/489,101

&lt;141&gt; 2000-01-21

30

&lt;160&gt; 22

35

&lt;170&gt; PatentIn version 3.0

40

&lt;210&gt; 1

&lt;211&gt; 29

45

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

50

<400> 1  
catgaatatg aacatgggta tgaacatgg

29

55

&lt;210&gt; 2

<211> 23

<212> DNA

5 <213> Homo sapiens

10 <400> 2  
tcgcagccct caaactcaca ctg 23

<210> 3

15 <211> 1085

<212> DNA

<213> Homo sapiens

20  
B  
25  
30  
35  
40  
45  
50  
55

<400> 3  
cacagcgccc gcatgtacaa catgatggag acggagctga agccgcccggg cccgcagcaa 60  
acttcggggg gcggcgggcg caactccacc gcggcgggcg cggcgggcaa ccagaaaaac 120  
agcccggacc gcgtaagcg gcccatgaat gccttcatgg tgtgggtcccg cgggcagcgg 180  
cgcaagatgg cccaggagaa cccaagatg cacaactcgg agatcagcaa gcgcctgggc 240  
gccgagtgga aacttttgtc ggagacggag aagcgggcgt tcatcgacga ggctaagcgg 300  
ctgcgagcgc tgcacatgaa ggagcaccgc gattataaat accggccccg gcggaaaacc 360  
aagacgctca tgaagaagga taagtacacg ctgcccggcg ggctgctggc ccccgggcggc 420  
aatagcatgg cgagcggggg cgggggtgggc gccggcctgg gcgcgggctg gaaccagcgc 480  
atggacagtt acgcgcacat gaacggctgg agcaacggca gctacagcat gatgcaggac 540  
cagctgggct accgcagca cccgggcctc aatgcgcacg gcgcagcgca gatgcagccc 600  
atgcaccgct acgacgtgag cgccctgcag tacaactcca tgaccagctc gcagacctac 660  
atgaacggct cgccaccta cagcatgtcc tactcgagc agggcacccc tggcatggct 720  
cttggctcca tgggttcggt ggtcaagtcc gaggccagct ccagcccccc tgtggttacc 780  
tcttcctccc actccagggc gccctgccag gccggggacc tccgggacat gatcagcatg 840  
tatctccccg gcgccgaggt gccggaaccc gccgccccca gcagacttca catgtcccag 900  
cactaccaga gcggccccgt gcccggcacg gccattaacg gcacactgcc cctctcacac 960  
atgtgagggc cggacagcga actggagggg ggagaaattt tcaaagaaaa acgagggaaa 1020

tgaggaggggt gcaaaagagg agagtaagaa acagcatgga gaaaacccgg tacgctcaaa 1080

aaaaa 1085

5

<210> 4

<211> 4091

10

<212> DNA

<213> Homo sapiens

15

<220>

<221> Unsure

20

<222> (2313)..(2313)

<223> n = a, c, t or g

25

<220>

30

<221> Unsure

<222> (2540)..(2540)

<223> n = a, c, t or g

35

40

<220>

<221> Unsure

<222> (2361)..(2361)

45

<223> n = a, c, t or g

50

<400> 4

ccggccgtct atgtccagg ccctctctc gcggtgccg tgaaccgcc agccgccccg 60

55

atgtacagca tgatgatgga gaccgacctg cactcgccc gcggcgccca ggccccacg 120

aacctctcgg gccccgccg ggcgggcggc ggcgggggcg gaggcggggg cggcgggcgc 180

ggcgggggcg ccaaggccaa ccaggaccgg gtcaaacggc ccatgaacgc cttcatggtg 240  
 5 tggtecccgcg ggcagcgggcg caagatggcc caggagaacc ccaagatgca caactcggag 300  
 atcagcaagc gcctggggggc cgagtgggaag gtcattgtccg aggccgagaa gcggccgttc 360  
 atcgacgagg ccaagcggct gcgcgcgctg cacatgaagg agcaccggga ttacaagtac 420  
 10 cggccgcgcc gcaagaccaa gacgctgctc aagaaggaca agtactcgct ggccggcggg 480  
 ctctggcgcg ccggcgcggg tggcgggcg gcggctgtgg ccatgggcgt gggcgtgggc 540  
 gtgggcgcgg cgcccggtgg ccagcgcctg gagagcccag gcggcgcggc gggcggcgcg 600  
 15 tacgcgcacg tcaacggctg ggccaacggc gcctaccccg gctcgggtggc ggccgcggcg 660  
 gccgcgcggc ccatgatgca ggaggcgcag ctggcctacg ggcagcacc cggcgcgggc 720  
 20 ggcgcgcacc cgcaccgcac ccgggcgcac ccgcaccgc accaccgca cgcgcaccgc 780  
 cacaaccgc agcccatgca ccgctacgac atgggcgcgc tgcagtacag cccatctcc 840  
 aactcgcagg gctacatgag cgcgtcgccc tcgggctacg gcggcctccc ctacggcgcc 900  
 25 gcggccgcgg ccgcgcgcgc gcaccagaac tcggccgtgg cggcgcggc gggggcgggc 960  
 gccgcgtcgt cgggcgcctt gggcgcgctg ggctctctgg tgaagtcgga gccagcggc 1020  
 30 agcccgccc cccagcgcga ctgcggggcg ccgtgccccg gggacctgcg cgagatgatc 1080  
 agcatgtact tgcccgcgg cgaggggggc gaccggcgcg cggcagcagc ggccgcggcg 1140  
 cagagccggc tgactcgtt gccgcagcac taccagggcg cggcgcggg cgtgaacggc 1200  
 35 acggtgcccc tgacgcacat ctagegcctt cgggacgcg gggactctgc ggcggcgacc 1260  
 cacgagctcg cgcccgcgc ccggtcccg cccgcggcg gcgcggcggt gcttttgtat 1320  
 40 cagacgttcc cacattcttg tcaaaaggaa aatactggag acgaacgcg ggtgacgcgt 1380  
 gtccccact caccttcccc ggagacctg gcgaccgcg ggcgctgaca ccagacttgg 1440  
 tttagactga acttcggtgt tttcttgaga cttttgtaca gtatttatca cctacggagg 1500  
 45 aagcggaagc gttttctttg ctgcagggga caaaaaagtc aaaacgaggc gagaggcgaa 1560  
 gccactttt gtataccggc cggcgcgctc actttcctcc gcgttgcttc cggacggcg 1620  
 50 cgaccgcgg agcccaagt acgcggagct cgtcgcatth gttataaat tagtaaggca 1680  
 ggtccaagca cttacaagtt tttttagatt gttaccgctc ttttgggttg gtttgtaaat 1740  
 ttatacaaag agattaccac caccaccccc tccttcagac ggcggagtta tattctgggt 1800  
 55 tttgtaaaac tttatgtatc tgagcatttc cttttttttt tttgggtttt gtattatttc 1860

ttgtaaatgc attgtgaaaa attttatttt cggcgttgca atgcggggag gagaagtcag 1920  
 attatgtaca tagttttcta aaaagccttt cttctaaaaa cgaaaaaaga cccccacca 1980  
 5 aaatgtttcg agtcaacaaa ttttaagagac agagcccatt ttctccataa atttgtaaca 2040  
 tgcctatttt tatgtgcatg ttttatgagt tcaaaatgca atgagggaaa tctgacaggg 2100  
 aaattatctg tatgaactaa aagtaaggga acccggggaa tgggaggaca ggatttttca 2160  
 10 aggaaccttt ttcaatgaaa gagaaggaag ttaaaaccta taggttattt tgtagagctg 2220  
 agtgtaata cgggccgaga aataaaagta tcttctgctc cggctgtttc actgcggacg 2280  
 15 gctggggctg ctgcgcgtta ccttgctgca acngggcgcc ttccacctgg ctgggggtct 2340  
 gcgccacagt ttggtccaga ngwgggagga ggaagggaag accccagtgg tgggaccctg 2400  
 gaccaggcca tggatgaagg acaaagacca gggcaggtca cgggtttccc aattccccag 2460  
 20 caattaagat ttcgagcaga atttatctaa atgtgtttca aggaaacaca atcgctgaac 2520  
 caaaaactgtac tgcagccgan cccctccgt ccctcctctg cccctcccc tggcttcttt 2580  
 25 ctcttgggaa aacgggcaaa ataattgtgc tggattctca cacacacaga aatatcgacc 2640  
 atcaccctcc cccgcgtgaa ctgggatgca agttgctaac cgatgtgaac gcaaaatgcc 2700  
 ttgttcatta ttctgacga gatcttgagg ttgtttgatg ctttaaattt ttttaattata 2760  
 30 ttattttcta ggtgtttatt ggtacattgc agttttttt ttgaaattta aaaatttctg 2820  
 taaaactttg tcttcaagta atctgacagc attaaatatt gcatttaaaa attatactgt 2880  
 35 agcaaataca tttaaaaatt aatcacaacg ttaagatgaa attatatatt tggaaaaaaa 2940  
 aaacacttga agcccgatg gaaatacgtt tatttcagca gccttaggtt tccccctgct 3000  
 ttctcaacac ccttccttgt cctggagtat ggactgtccg tccaaaagtg agcctatgct 3060  
 40 ataagtttaa tgagaaccga attcagcctg cattcgagaa tagctttaag tataatgctg 3120  
 atctgacaat tgacgtgtaa tttgggaagt cttttgata attttgctta aaccactcat 3180  
 45 tcgttaaagt gattacaaaa aagttcaaga atgatgtcca ctgctttcta acaagataat 3240  
 aaaccccccc cctcttttct ttttctttat ttttatttct ttttagctatt tgatccttct 3300  
 tgaagcagtt gtttctggaa gagtctgtgc gccatggat ggctgagcac cactacgact 3360  
 50 tagtccggga taagggcctc cccagtcctc tccgggagat gatttgggaa attttataat 3420  
 gcttgttctg ttaactcacc gggaccttga gggccaatg ggaccttgag ggttttctct 3480  
 55 gaaatataca aacttaaagg actctctctg aggttctttg actgacgtcc actctcagtc 3540  
 tggccccctg gctccccctg gtgtaccctg gagtttctgt gtccaattgt tggcatctag 3600

gtcttggtc aagattagga tgtgggcccc acttttagagg cacagactat gaaaagctga 3660  
 gttagtgcgc ccgggacgcc aggcaagcag cttttacagt ttggcatctt attgcagggtg 3720  
 5 cttcgtgcac agtcagctga aatagccaat gccagggtgct ccaaccacct tatttccttg 3780  
 ttttgttgat tagaacaaca cagaaaaaag caaatataaa tttttaatga ctccatttaa 3840  
 10 aaatatcaca ggggtgggggc aaggaaatta gctgagattc atctcaggat tgagattcta 3900  
 tcccccttc ccgcgcccca gcagtgtcgc tccaattcaa attagtggag aaaagattac 3960  
 agtaggccct gagccgactg tgaattcggg gcttggccaa ggtaacactc atcgtattca 4020  
 15 cggagraaat actatatgat gatagttatt atattatatg acgacttcat tcacttccca 4080  
 aatcacaggg t 4091  
  
 B<sup>120</sup>  
 <210> 5  
 <211> 1602  
 25 <212> DNA  
 <213> Homo sapiens  
  
 30  
 <400> 5  
 atgctcctgg acgcgggtcc gcagttcccg gccatcgggg tgggcagctt cgcgcgccac 60  
 catcaccact ccgcgcgggc ggcggcggcg gctgccgccc agatgcagga ccgtgaactg 120  
 35 agcctggcgg cggcgcagaa cggttcggtt gattccgccc ccgcgcacat gggagccttc 180  
 aagctcaacc cgggcgcgca cgagctgtcc ccgggccaga gctcggcggtt cagctcgcag 240  
 40 ggccccggcg cctaccccgg ctccgctgcg gctgccgctg cggccgcagc gctcggggccc 300  
 cacgcccgcg acgttggttc ctactctggg ccgcccttca actccacccg ggacttccctg 360  
 ttccgcagcg cgcggcttcc ggggacttcg gcgccggggc gcgggcagca cgggctgttc 420  
 45 gggccggggc cgggcggcct gcaccacgcg cactcggacg cgcagggccca cctcctcttc 480  
 ccgggcctgc cagagcagca cgggccgcac ggctcgcaga atgtgctcaa cgggcagatg 540  
 50 cgctcggggc tgcccggcga ggtgttcggg cgctcggagc aataccgcca ggtggccagc 600  
 ccgcggaccg acccctactc ggcggcgcaa ctccacaacc agtacggccc catgaatatg 660  
 aacatgggta tgaacatggc agcagccgcg gccaccacc accaccacca ccaccaccac 720  
 55 ccggtgcct ttttccgcta tatgcggcag cagtgcacat agcaggagct aatctgcaag 780

tggatcgacc ccgagcaact gagcaatccc aagaagagct gcaacaaaac tttcagcacc 840  
 atgcacgagc tggtagacaca cgtctcggtg gagcacgtcg ggggcccga gcagagcaac 900  
 5 cactgtctgct tctgggagga gtgtccgcgc gagggcaagc ccttcaaggc caaatacaaa 960  
 ctggtcaacc acatccgcgt gcacacaggc gagaaaccct tcccctgccc cttcccgggc 1020  
 10 tgtggcaaag tcttcgcgcg ctccgagaac ctcaagatcc acaaaaggac ccacacaggg 1080  
 gagaagccgt tccagtgtga gtttgagggc tgcgaccggc gcttcgcca cagcagcgac 1140  
 aggaagaagc acatgcacgt ccacacctcc gataagccct atctctgcaa gatgtgcgac 1200  
 15 aagtcctaca cgcaccccag ctgctgcgcg aagcacatga aggtccatga gtcctccccg 1260  
 cagggttctg aatcctcccc ggccgccagc tccggctatg agtcgtccac gccccgggg 1320  
 ctggtgtccc ccagcgccga gcccagagc agtccaacc tgtcccagc gggggcgga 1380  
 20 gggggcgcg cggctgcggc gggggcgcc gcggtgtccg cgggtgcaccg gggcgaggc 1440  
 tcgggcagtg gggcgcgggg aggcggctca ggcgcgga gcggcagtg cggggcgggc 1500  
 25 gggggcgcg gggcggggg cggcggcagc tctggcgggg gcagcgggac agccgggggt 1560  
 cacagcgcc tctcctcaa cttcaatgaa tggtagtgt ga 1602

30 <210> 6

<211> 1322

<212> DNA

35

<213> Homo sapiens

40 <400> 6

ggaattccgg gcgcggttgt gagtagtacc gggagtgggg tgatccggg ctaggggagc 60  
 gcggcgccc atcgggctta gtcggagctc cgaaggaggt gactaggaca cccgggtggg 120  
 45 ctacttttct tccggtgctt ttgctttttt ttctcttgg gctcgggctg agtgtcgccc 180  
 actgagcaaa gattccctcg taaaaccag agcgaccctc ccgtcaattg ttgggctcgg 240  
 gagtgtcgcg gtgccccgag cgcgcggggc gcggaggcaa agggagcggg gccggccgcg 300  
 50 gacggggccc ggagcttgcc tgctccctc gctcgccca gcgggttcgc tcgcgtagag 360  
 cgcagggcgc gcgcgatgaa ggcggtgagc ccggtgcgcc cctcgggccg caaggcgccg 420  
 55 tcgggctcgc gcggcgggga gctggcgctg cgctgcctgg ccgagcacgg ccacagcctg 480  
 ggtggctccg cagccgcggc gggggcgggc gcggcagcgc gctgtaaggc ggccgaggcg 540

gcggccgacg agccggcgct gtgcctgcag tgcgatatga acgactgcta tagccgcctg 600  
 cggaggttg tgcccacat cccgccaac aagaaagtca gcaaagtga gatcctgcag 660  
 5 cacgttatcg actacatcct ggacctgcag ctggcgctgg agacgcaccc ggccctgctg 720  
 aggagccac caccgcccgc gccgccacac caccggccg ggacctgtcc agccgcgccg 780  
 10 ccgcggaacc cgctcactgc gctcaacacc gaccggccg gcgcggtgaa caagcagggc 840  
 gacagcattc tgtgccgtg agccgcgtg tccaggtgtg cggccgcctg agcccgagcc 900  
 aggagcacta gagagggagg gggaagagca gaagttagag aaaaaagcc accggaggaa 960  
 15 aggaaaaaac atcgccaac ctagaaacgt tttcattcgt cattccaaga gagagagagg 1020  
 aaagaaaaat acaactttca ttctttcttt gcacgttcat aaacattcta catacgtatt 1080  
 20 ctcttttgtc tcttcattta taactgctgt gaattgtaca tttctgtgtt ttttgagggt 1140  
 gcagttaaac ttttaagctt aagtgtgaca ggactgataa atagaagatc aagagtagat 1200  
 ccgactttag aagcctactt tgtgaccaag gagctcaatt tttgttttga agctttacta 1260  
 25 atctaccaga gcattgtaga tatttttttt ttacatctat tgtttaaaat agccggaatt 1320  
 cc 1322  
 30  
 <210> 7  
 <211> 2389  
 35 <212> DNA  
 <213> Homo sapiens  
 40  
 <400> 7  
 cggtcagcg ggggccgagg ccatgttccc ggtgtttcct tgcacgctgc tggccccccc 60  
 cttccccgtg ctgggcctgg actcccgggg ggtgggcggc ctcataact cttccccgcc 120  
 45 acctcagggc cacgcccaga accccctgca ggtcggggct gagctccagt cccgcttctt 180  
 tgcctcccag ggctgcgccc agagtccatt ccaggccgcg ccggcgcccc cgcccacgcc 240  
 50 ccaggccccg gcggccgagc ccctccaggt ggacttgctc ccggtgctcg ccgccgccca 300  
 ggagtccgcc gcggtgctg cggccgctgc cgcgctgct gccgcgctg ctgccgcgcc 360  
 cccggcccct gccgccgct ctacggtgga cacagcggcc ctgaagcagc ctccggcgcc 420  
 55 ccctccgcc ccccgccag tgtcggcgcc cgcggccgag gccgcgcccc ccgctccgc 480



cgccactatc gccgcggcgg cggccaccgc cgtcgtagcc ccaacctcga cggtcgccgt 540  
ggccccggtc gcgtctgcct tggagaagaa gacaaagagc aagggggccct acatctgcgc 600  
5 tctgtgcgcc aaggagttca agaacggcta caatctccgg aggcacgaag ccatccacac 660  
gggagccaag gccggccggg tccccctcggg tgctatgaag atgccgacca tgggtgccct 720  
gagcctcctg agcgtgcccc agctgagcgg agccggcggg ggagggggag aggcgggtgc 780  
10 cggcggcggc gctgccgcag tggccgcggg tggcgtggtg accacgaccg cctcggggaa 840  
gcgcatccgg aagaaccatg cctgcgagat gtgtggcaag gccttcgcg acgtctacca 900  
15 cctgaaccga cacaagctgt cgcactcggg cgagaagccc taccagtgcc cgggtgtgcca 960  
gcagcgcttc aagcgcaagg accgcatgag ctaccacgtg cgctcacatg acggcgctgt 1020  
gcacaagccc tacaactgct cccactgtgg caagagcttc tcccggccgg atcacctcaa 1080  
20 cagtcacgtc agacaagtgc actcaacaga acggcccttc aaatgtgaga aatgtgaggc 1140  
agctttcgcc acgaaggatc ggctgcgggc gcacacagta cgacacgagg agaaagtgcc 1200  
25 atgtcacgtg tgtggcaaga tgctgagctc ggcttatatt tcggaccaca tgaaggtgca 1260  
cagccagggg cctcaccatg tctgtgagct ctgcaacaaa ggtactggtg aggtttgtcc 1320  
aatggcggcg gcagcggcag cggcggcagc ggcagcagcg gcagcagtag cagccccctcc 1380  
30 cacagctgtg ggctccctct cgggggcgga ggggggtgcct gtgagctctc agccacttcc 1440  
ctcccaaccc tgggtgagctc caagttgggt gcggggggaga ggggagaatg gagtagagtc 1500  
35 ccttggtaca agctcctctc ccccccttt tcccaccaac tcctatttcc ctaccaacca 1560  
aggagcctcc agaaggaaag gaggaagaaa tgttttctta ggggaattcg ctaggtttta 1620  
acgatttgct tctcctgctc ctcttctatc agacctgacc ccacacaaac ctgtcccctc 1680  
40 ggttggtgtg aagtcccctg gacagtgggc aggggtggca gaggacacga gcagccactg 1740  
cccgtacccc ctctcctctc tgtaagccca tgccctgtct tcccagggac ttgtgagcct 1800  
45 ctccctcga cggctcctct ctctccttcc agtcctctcc ccctgctgtc tgcagccct 1860  
ccccggggag ttggtgcttt cttttccttt tttttttttt ttccaggggg agggaggaga 1920  
ggaaggaggg ggatcagagc tgtcccaaag agggaaagcg gtgaggtttg aggaggggca 1980  
50 gaagcagggc cggcaaagggt tgtaccttca taaggtggtg tcgggggggt ggggtcaggc 2040  
cctgaacatc gtctacttg agaatctgtc aggggaaaaa gtcaagggga gcaggaggaa 2100  
55 gagccaggag ggccagaggc agagaagaga tggagtctta ggggccaggg tgagccaggg 2160  
gtccagggcc tagaggtgct tctggggggg ggggaatgca gccagtgtcc ccctcccctc 2220

ttccacccca gctccagccc tgggtcttgtc ttttcatccc tcttccccac gacagaagaa 2280  
 gttgtggccc tggcatgtca tctgtttcct gtgtcccctg catgtacccc accctccacc 2340  
 5 ctttcctttt gcgcggaccc cattacaata aattttaaat aaaatcctg 2389

<210> 8

<211> 1860

<212> DNA

<213> Homo sapiens

<400> 8

gggacgtgag ccgctgcgcc caccgggcta gaccgggcgc catcatgctg cttctgccaa 60  
 gcgcgcgcgga cggccggggc accgccatca cccacgctct gacctctgcc tctacactct 120  
 gtcaagttga acctgtggga agatggtttg aagcttttgt taagaggaga aacagaaatg 180  
 25 cttctgcctc ttttcaggaa ctggaggata agaaagagtt atccgaggaa tcagaagatg 240  
 aagaattgca gttggaagag tttcccatgc tgaaaacact tgatcccaaa gactggaaga 300  
 30 accaagatca ttatgcagtt cttggacttg gccatgtgag atacaaggct acacagagac 360  
 agatcaaagc agctcataaa gcaatggttt taaaacatca cccagacaaa cggaaagcag 420  
 ctggtgaacc aataaaaagaa ggagataatg actacttcac ttgcataact aaagcttatg 480  
 35 aaatgttatc tgatccagtg aaaagacgag catttaacag tgtagatcct acttttgata 540  
 actcagttcc ttctaaaagt gaagcaaagg ataatttctt cgaagtgttt accccagtgt 600  
 40 ttgaaaggaa ttccagatgg tcaaataaaa aaaatgttcc taaacttggg gatatgaatt 660  
 catcatttga agatgtagat atattttatt ctttctggta taattttgat tcttggagag 720  
 aattttctta tttagatgaa gaagaaaaag aaaaagcaga atgtcgtgat gagaggagat 780  
 45 ggattgaaaa gcagaacgga gcaacaagag cacaagaaa aaaagaagaa atgaacagaa 840  
 taagaacatt agttgacaat gcatacagct gtgatccaag gataaaaaag ttcaaggaag 900  
 50 aagaaaaagc caagaaagaa gcagaaaaga aagcaaaagc agaagctaaa cggaaggagc 960  
 aagaagctaa agaaaaacaa agacaagctg aattagaagc tgctcgggta gctaaggaga 1020  
 aagaagagga ggaagtcaga cagcaagcat tgctggcaaa gaaggaaaaa gatatccaga 1080  
 55 aaaaagccat taagaaggaa aggcaaaaac ttcgaaactc atgcaagata gaagaaataa 1140

atgagcaaat cagaaaagag aaagaggaag ctgaggctcg tatgcgacaa gcatctaaga 1200  
 acacagagaa atcaactggg ggaggtggaa atggaagtaa aaattgggtca gaagatgac 1260  
 5 tacaattact aattaaagct gtgaatctgt tccctgctag aacaaattca agatgggaag 1320  
 ttattgctaa ttacatgaac atacattctt cctctggagt caaaagaact gccaaagatg 1380  
 ttattggcaa agcaaagagt ctccaaaaac ttgacctca tcaaaaagat gacataaata 1440  
 10 aaaaggcatt tgataagttc aaaaaagaac atggagtggg acctcaagca gacaacgcaa 1500  
 cgccttcaga acgatttgaa ggtccatata cagacttcac cccttggaca acagaagaac 1560  
 15 agaagctttt ggaacaagct ttgaaaacat acccagtaaa tacacctgaa agatgggaaa 1620  
 aaatagcaga agcgggtgcct ggcaggacaa agaaggactg catgaaacga tacaaggaac 1680  
 ttgtcgagat ggtaaaagca aagaaagctg ctcaagaaca agtgctgaat gcaagtagag 1740  
 20 ccaagaaatg acaatctttg ttgtgtgtgc atttttataa taaaactgaa aatactgtaa 1800  
 acattttcat tcttaaaatt atactcatgg taataatttg aaagtaaaaa aaaaaaaaaa 1860  
 25  
 <210> 9  
 <211> 2291  
 30 <212> DNA  
 <213> Homo sapiens  
 35  
 <400> 9  
 gaattcctga ctgccacagg tgtacaggaa acatttgtct tttgttgctg gaaagctgct 60  
 caaatcaaag aacatttact gaagtcaaag tgggtccgcc ctacatctct caatgtgggt 120  
 40 cgaataatta catcagagct ctatcgatca ctgggagatg tcctccgtga tgttgatgcc 180  
 aaggctttgg tgcgctctga ctttcttctg gtgtatgggg atgtcatctc aaacatcaat 240  
 45 atcaccagag cccttgagga acacaggttg agacggaagc tagaaaaaaa tgtttctgtg 300  
 atgacgatga tcttcaagga gtcatcccc agccacccaa ctggttgcca cgaagacaat 360  
 gtggtagtgg ctgtggatag taccacaaac agggttctcc attttcagaa gaccagggt 420  
 50 ctccggcggt ttgcatttcc tctgagcctg tttcagggca gtagtgatgg agtggagggt 480  
 cgatatgatt tactggattg tcatatcagc atctgttctc ctgagggtggc acaactcttt 540  
 55 acagacaact ttgactacca aactcgagat gactttgtgc gaggtctctt agtgaatgag 600  
 gagatcctag ggaaccagat ccacatgcac gtaacagcta aggaatatgg tgcccgtgtc 660

	tccaacctac acatgtactc agctgtctgt gctgacgtca tccgccgatg ggtctaccct	720
	ctcaccccag aggcgaactt cactgacagc accaccacaga gctgcaactca ttcccggcac	780
5	aacatctacc gagggcctga ggtcagcctg ggccatggca gcacccctaga ggaaaatgtg	840
	ctcctgggct ctggcactgt cattggcagc aattgcttta tcaccaacag tgtcattggc	900
10	cccggtgcc acattggtga taacgtggtg ctggaccaga cctacctgtg gcagggtgtt	960
	cgagtggcgg ctggagcaca gatccatcag tctctgcttt gtgacaatgc tgagggtcaag	1020
	gaacgagtga cactgaaacc acgctctgtc ctcaattccc aggtggctgt gggcccaaat	1080
15	atcacgctgc ctgagggctc ggtgatctct ttgcaccctc cagatgcaga ggaagatgaa	1140
	gatgatggcg agttcagtga tgattctggg gctgaccaag aaaaggacaa agtgaagatg	1200
20	aaaggttaca atccagcaga agtaggagct gctggcaagg gctacctctg gaaagctgca	1260
	ggcatgaaca tggaggaaga ggaggaactg cagcagaatc tgtggggact caagatcaac	1320
	atggaagaag agagtgaag tgaaagtgag caaagtatgg attctgagga gccggacagc	1380
25	cggggaggct cccctcagat ggatgacatc aaagtgttcc agaataagat tttaggaaca	1440
	ctacagcggg gcaaagagga gaacatttct tgtgacaatc tcgtcctgga aatcaactct	1500
30	ctcaagtatg cctataacgt aagtctaaag gaggtgatgc aggtactgag ccacgtggtc	1560
	ctggagttcc ccctgcaaca gatggattcc ccgcttgact caagccgcta ctgtgccctg	1620
	ctgcttctc tgctaaaggc ctggagccct gtttttagga actacataaa gcgcgcagcc	1680
35	gaccatttgg aagcgtagc agccattgag gacttcttcc tagagcatga agctcttgg	1740
	atttccatgg ccaaggtact gatggcttcc taccagctgg agatcctggc tgaggaaaca	1800
40	attctgagct ggttcagcca aagagataca actgacaagg gccagcagtt gcgcaagaat	1860
	caacagctgc agaggttcat ccagtggcta aaagaggcag aagaggagtc atctgaagat	1920
	gactgaagtc aactgcctg ctcccttggg tgtgattgag tgccctcctg gtcctgggc	1980
45	tgggacaagt gaggaactag ctgcagagg atgagtgacc accatccagg ctgagactga	2040
	aaggagcaga ggctggaact acagtattct tccccctgct agcaaccatg tgccctccat	2100
50	cctgactgtg gagttgggat gtggaagtgg ggctggaaca aagcttctgc ctagggagga	2160
	gctaagcagg cccggcagtt ggaggaaggc cagaggaaca gctttgtgct ccggcttcc	2220
	ctcagggaac agcagagagc agttggctct ttctgctgct tgtatatgtt aatattaaaa	2280
55	gagagtgggtg t	2291

<210> 10

<211> 1580

5

<212> DNA

<213> Homo sapiens

10

<400> 10

atcccctccg gttttcctca gtctccacgt acgtccctca aagcgcgtcc taaaacccgg 60  
 15 ataaccggag cgctcccat ggaccacacg gagggcttgc ccgcggagga gccgcctgcg 120  
 catgctccat cgcctgggaa atttggtgag cggcctccac ctaaacgact tactagggaa 180  
 gctatgcgaa attattttaa agagcgaggg gatcaaacag tacttattct tcatgcaaaa 240  
 20 gttgcacaga agtcatatgg aaatgaaaaa aggttttttt gccacactcc ttgtgtatat 300  
 cttatgggca gcggatggaa gaaaaaaaaa gaacaaatgg aacgcgatgg ttgttctgaa 360  
 25 caagagtctc aaccgtgtgc atttattggg ataggaaata gtgaccaaga aatgcagcag 420  
 ctaaacttgg aaggaaagaa ctattgcaca gccaaaacat tgtatatatc tgactcagac 480  
 aagcgaaagc acttcatttt ttctgtaaag atgttctatg gcaacagtga tgacattggt 540  
 30 gtgttctcctca gcaagcggat aaaagtcac tcctaaacctt ccaaaaagaa gcagtcattg 600  
 aaaaatgctg acttatgcat tgcctcagga acaaaggtgg ctctgtttta tcgactacga 660  
 35 tcccagacag ttagtaccag atacttgcac gtagaaggag gtaattttca tgccagttca 720  
 cagcagtggg gagccttttt tattcatctc ttggatgatg atgaatcaga aggagaagaa 780  
 ttcacagtcc gagatgtcta catccattat ggacaaacat gcaaacttgt gtgctcagtt 840  
 40 actggcatgg cactccaag attgataatt atgaaagttg ataagcatac cgcattattg 900  
 gatgcagatg atcctgtgtc acaactccat aaatgtgcat ttaccttaa ggatacagaa 960  
 45 agaatgtatt tgtgcctttc tcaagaaaga ataattcaat ttcaggccac tccatgtcca 1020  
 aaagaaccaa ataaagagat gataaatgat ggcgcttcct ggacaatcat tagcacagat 1080  
 aaggcagagt atacatttta tgagggaatg ggccctgtcc ttgccccagt cactcctgtg 1140  
 50 cctgtggttag agagccttca gttgaatggc ggtggggacg tagcaatgct tgaacttaca 1200  
 ggacagaatt tactccaaa ttacgagtg tggtttgggg atgtagaagc tgaaactatg 1260  
 55 tacaggtgtg gagagagtat gctctgtgtc gtcccagaca tttctgcatt ccgagaaggt 1320  
 tggagatggg tccggcaacc agtccaggtt ccagtaactt tgggtccgaaa tgatggaatc 1380

atttattcca ccagccttac ctttacctac acaccagaac cagggccacg gccacattgc 1440  
 agtgtagcag gagcaatcct tccagccaat tcaagccagg tgccccctaa cgaatcaaac 1500  
 5 acaaacagcg aggggaagta cacaaacgcc agcacaaatt caaccagtgt cacatcatct 1560  
 acagccacag tggatccta 1580  
 10  
 <210> 11  
 <211> 2509  
 15 <212> DNA  
 <213> Homo sapiens  
 20  
 S<sup>I</sup> <400> 11  
 tggcggggg atggggcgcc ggtctgcctt gacagggttg caaagttggt ttctaaattc 60  
 cgaagcgccc ctctgcccc tcccccaat ctgcttgctt cgggggtggg ggggtggggg 120  
 25 gtcacctcct caggtttcgt tctttcaaac tttttgaaac cctaattggt ggcctctgag 180  
 tgggcctcgt ggactccgc ctctaagta actcttacca cgtcactagg ccaaagaggg 240  
 30 gcgtgggggtg aacgaaagg ctcccgaact ttttttttc cagccaggcc gaacgggggc 300  
 tcggtaatga ttggccaggg cgcactactg cgaacctgtc aatcacgggt cctccgggtt 360  
 gcgaggggag gaccaagccc caaccccgagg gaatccgagc aggtatataa ggggccagc 420  
 35 tagagcccag gcagactgtg aatgcgacct gttcgagaga actcatcagg tgcgagaagc 480  
 ccgcggggtt ctgctgattt ggcggggagc attttgataa gcctaccctt cccgcccagc 540  
 40 tcgctggccc acaggcccc aagctccgct ccgacggagt cccagggcct ttccaccgtg 600  
 gccgctccag ccccgaggc gccttctcct cccgccacgc tggcgacct tcttcccgc 660  
 ccggcaatgt acagccttct ggagactgaa ctcaagaacc ccgtaggagc acccacacaa 720  
 45 gcggcgggca ccggcgggcc cgcagcccc ggaggcgag gcaagagtag tgcgaacgca 780  
 gccggcgagg cgaactcggg cgcgggcagc agcgggtggt cgagcggagg tggcggggt 840  
 50 acagaccagg accgtgtgaa acggcccatg aacgccttca tggatatggt ccgcgggcag 900  
 cggcgcaaaa tggccctgga gaaccccaag atgcacaatt ctgagatcag caagcgcttg 960  
 ggcgcccact ggaaactgct gaccgacgcc gagaagcgac cattcatcga cgaggccaag 1020  
 55 cgacttcgag ccgtgcacat gaaggagtat ccggactaca agtaccgacc ggcggcgaag 1080

accaagacgc tgctcaagaa agataagtac tccctgccca gcggcctcct gcctcccggg 1140  
 gccgcggccg ccgcccgcgc tgccgcggcc gcagccgctg ccgccagcag tccggtgggc 1200  
 5 gtggggccagc gcctggacac gtacacgcac gtgaacggct gggccaacgg cgcgtactcg 1260  
 ctggtgcagg agcagctggg ctacgcgcag cccccgagca tgagcagccc gccgcccgcg 1320  
 cccgcgctgc accgctacga catggccggc ctgcagtaca gcccaatgat gccgcccggc 1380  
 10 gctcagagct acatgaacgt cgctgccgcg gccgcccgcg cctcgggcta cgggggcatg 1440  
 gcgcctcag ccacagcagc cgcggccgcc gcctacgggc agcagcccgc caccgcccgc 1500  
 15 gccgcagctg cggccgcagc cgccatgagc ctggggccca tgggctcggg agtgaagtct 1560  
 gagcccagct cgccgcccgc cgccatcgca tcgcactctc agcgcgcgtg cctcgggcag 1620  
 ctgcgcgaca tgatcagcat gtacctgcca cccggcgggg acgcggccga cgcgcctct 1680  
 20 ccgctgcccg gcggtcgctt gcacggcgtg caccagcact accagggcgc cgggactgca 1740  
 gtcaacggaa cggtgccgct gacccacatc tgagcacggc cctgcgctcg tccacccttg 1800  
 25 ttccccaccc ccacccccac tcccgccccg ccccccaag ttgggtcgcc ttgttttagct 1860  
 ttgcttgctt gggactgttg ccttgtagcg atgatgggga gggctgaaag ttttgctgta 1920  
 gctgtcgggt tttgtacaaa agtcaaaaat aagtcaggag cagcgaaaat gggatcttct 1980  
 30 agagagctct cttgccccac gccgctgctc ctttcacctt ttagaggctg gaatcgctgt 2040  
 gttatttgca aagaaaaaac agccccact cctcctcctg agttccaggg ttattctggt 2100  
 35 acatttgaaa atgttgtctt gttagtttgc agttagccaa ggagtgaatg ggagaaacat 2160  
 agtatcgggt gaggtccagc tggagaactg caacgcctac gccccagtc gtgtcgcgtc 2220  
 tgttttcttc gaggtttttt ggggcgctga ccgctccaag cagcgcggca gctaaagcca 2280  
 40 atgttaattt atagccaggt gtgcgtgtgt ctccgcctc gccgcccctg gccgcgggac 2340  
 agcttctgtc caatcatgtt gagttggtga tttctgccgt gatctgtttg atatttcttc 2400  
 45 gcgctaattg gttcagattt cgtttgggta gtggggaggg gctactttgt ttcagggttt 2460  
 tcaagctttt actcttaatt cctaaatgag atcaataaat tttataacc 2509  
  
 50 <210> 12  
 <211> 8372  
 <212> DNA  
 55 <213> Homo sapiens

<220>

5 <221> Unsure

<222> (2677)..(2677)

10 <223> n = a, c, t or g

15 <220>

<221> Unsure

<222> (5121)..(5121)

20 <223> n = a, c, t or g

25

<220>

<221> Unsure

30 <222> (5117)..(5117)

<223> n = a, c, t or g

35

<220>

40 <221> Unsure

<222> (5116)..(5116)

45 <223> n = a, c, t or g

50

<400> 12

aagcttggtg ccatctatatt tggactatgc cttgcataca gctttatggg aacatttgtc 60

aggcaaaagt ataataatgg caaactctac gccttttatt ttaaattaga ttggtgtgat 120

55 ttgatgctga cgggagtgag agtaatggcc ttatcctgct gcaggctgtg ctgaggatgg 180



cctggtctgc caccctcctc gagtagcatt ttgcatgtgt aacaggggtct cccctctggg 240  
 gcacaacaac aaagagaagt tgctaaggac aagaagcagg tgcggaaatg catctcccat 300  
 5 tggaacagcc ctgggcttac tccaatggct gagagaggtg ctatggccag tcctcccaga 360  
 gctctgcagc tgcacttggg ggtggacagt ctctgtcttg tcctgcgtga taacggccgt 420  
 gaaagccagc caactgctgc caaaaatcac ccagccgatt gggggtttcc catcggcgca 480  
 10 ccctgcccgg agccaagaag acaggctggg gctgctgtat ttgtatttat atccattgct 540  
 gcgctctgcg ttctcgtggc acgcctggac actcctccgc ctccccctcc tcttctcct 600  
 15 ccagggccac ctccccgcct tccccacccc catctgcttc tgtcaaataa gaaagtcacc 660  
 gaggagaacc caaacactcc agccgctgag agccccctt ggcaacttggc agcacgcggc 720  
 ggcgggctcc tcggctcaac ttcgaggagt ctccgcgacg caacttttgg ggacgctttg 780  
 20 catttaagag agaacgaccg aggaggagga gcgctctgcc cgcccgccgc tacctgcccc 840  
 gagctcacca gcaaacgcca ctgcagacga aggacccaaa gaacgtaaag ggcaaactgc 900  
 25 cgccgcgggg agggggcacc gccgagaagt tagagtgtcc cagagacaac ctgctcgagc 960  
 gctcggccgg agacactaag gcggcccggg gcgcgcgctg gccctggctg gtccccagc 1020  
 cccctcctcc ggggcgggag cgacgcggg gcgcgacgag ccccgccgg ccgagcggt 1080  
 30 ctccgcgggc agccaacatt gatttctcc gggccgagg cgagggccc ggcggcggcg 1140  
 ggctgcagcc gcggcaggg gagagcatgt ccaagccgg ggaccacgtc aagcgccca 1200  
 35 tgaacgcctt catggtgtgg tcgcgggctc agcggcgcaa gatggcccag gagaaccca 1260  
 agatgcacaa ctcgagatc agcaagcgt tgggcgccga gtggaaactg ctacagagt 1320  
 cggagaagcg gccgttcac gacgaggcca agcgtctac cgccatgcac atgaaggagc 1380  
 40 accccgacta caagtaccg ccgcggcgca agcccaagac gtcctcaag aaggacaagt 1440  
 tcgccttccc ggtgcctac ggcctgggc gcgtggcgga cgccgagcac cctgcgtca 1500  
 45 aggcgggcgc cgggctgcac gcgggggcgc gcggcgccct ggtgcctgag tcgtgctcg 1560  
 ccaatcccga gaaggcgcc gcggcgccg ccgctgccgc cgacgcgtc ttcttccgc 1620  
 agtcggccgc tgccgcgcc gctgccgcc ccgcgcgc cgcgggcagc ccctactgc 1680  
 50 tgctcgacct gggctccaaa atggcagaga tctcgtcgtc ctctccggc ctcccgtag 1740  
 cgtcgtcgt gggctaccc accgcgggc cgggcgctt ccacggcgcg gcggcggcg 1800  
 55 ctgcagcggc ggccgcgcc gccggggggc acacgcact gcacccagc ccgggcaacc 1860  
 cgggctacat gatcccgctg aactgcagc cgtggcccag ccccgggctg cagccgcgc 1920

tcgcctacat cctgctgccg ggcattggca agccccagct ggacccctac cccgcggcct 1980  
 acgctgccgc gctatgaccc cgcggggccg cctcgcgagg accggtgtgc acacgtgtac 2040  
 5 atatgtatag gtacgagcgc tgcggcctcc ccgtgcgccc tcccgcgacc gggggcccgg 2100  
 tttgtatgta catagaatgt ataggtgccca ggtagaggca gagaggccag gcggggcagg 2160  
 10 agtggccaag cgcgcaaggc cgcggggcag caggcctgtg aattcgcagg atcatttcag 2220  
 acccgcaact cggcagccaa ctcgaaagca ggcggttgtg tgcggcagca gttggcgttt 2280  
 gctttgcact tcggaacctg ttgcgttttg acccacggag gtggaggagt aactttttga 2340  
 15 catgttggcc tttccagttt tgttggaaagt ttcatggctg gttttgtttt tgtttctcat 2400  
 totttctcct cgcctctcag cccccaacc cccaacccc tcccggtccg tgttgcatgc 2460  
 20 acgctgttca aatgtgaggt ctgaaatggc tggcacacgg gaaaagctgc ttgtgtcatt 2520  
 cgtttctggg agtgggatgg ctctgagcag cctcgcctcc ctgtttgtac tatttgaact 2580  
 ttgcagatct ctgttctctc aagcagaact cccaaccaga tccattcttg accagtgacc 2640  
 25 ggctcgaatc tggccttttg tgtgagatga tcacggnntc ttttgtttat cacgccattt 2700  
 gcaaatcaga gcaagagctc tttctcaagg gcaagaaacg caaacaagaa atatttgtga 2760  
 30 gatgaaagtt gtcaattgga ttttcttctc aaacaaaca caacaacaaa ctactagaag 2820  
 tctccctgag tccactcgtc tggatttctg acacagtta caaaaagga aaaaggcact 2880  
 gctcctattt tcccttatgg ctgagttcac cttaagattg taaatgtgta tatgtcagtg 2940  
 35 aaaacattga ggcttgaaa atgtgttatt ttcgttgccc taagtttgag tcgactttag 3000  
 actcaaaaac attttgagcg aatatcaaag ttaactttta aaaattgcga aactatttca 3060  
 40 gaatcgcaat tttatcgaag attaaatcag acttttttgt ctggttaatta tatatttatt 3120  
 atttagcaaa actgaagaaa aaaagcacag aattgtttca acagatgtct ctcatTTTca 3180  
 gctagcattt ctctccaag ttgagctggg ttaatgtgtt ttggatttcc ctcccaatt 3240  
 45 ggcttatTTT ttagatcacc tgcaattcat ttgcaaattg caataaaaca cattttagaa 3300  
 aaaaggaacc ttcaattatt agctttgttt ctttttaaat gtatatattt tgactaatgt 3360  
 50 ttgtgaatga agttggctaa catgtattta gtttcatttt ggctttatgt aatataaagt 3420  
 ttttaaaatt ttaaataatg ttttaacctt tatgtgtaaa tgattttcta gtgtgacctt 3480  
 ctaatttaat attagacgtc taaggatat ctgtaaatta gaatccgact atcactctgt 3540  
 55 tcattttttt tgaacaaaga gtttaataa agcctgaacc agggaaaaga aaaatcttct 3600

atttcttgtt gagttcctaa caagatTTTT atctgaattg cccttacgtg cctgggtccag 3660  
 gtgaagtgtg aggtatcctc caaaggcacc ctttgtttca cttttgaata gatttactag 3720  
 5 gaaatctaaa tcaagccatt gttattcaga gccaaaaacc tgatttatca catttttaac 3780  
 cgtgaatagg aaagaagatt tttaaaaagc ccaagtcgtt gtattagctt taacaacaac 3840  
 10 aaaaaaaagg cattcatgaa ccagtagaac agagcccatt gaaaacatcc agacctttca 3900  
 aagcatttca ccagtttcta gtaacatttt aagaggggaa agttgcttga ccactttatc 3960  
 ttgttagttg aagagcccca ccacttaaat cagtgttaatt tgttctccta tctttggggt 4020  
 15 attccttgtt gacaccttaa ggttttattt ggaaggataa tcactactaa cgacaaagta 4080  
 caaatttttg cctcttttagg acttaatttt gttatgctaa tcgcattaaa gtagaagtat 4140  
 aacattcaaa tggagagggt tggatttcta gggctagaca aattgctact aaagtttgaa 4200  
 20 aaatcataaa ggatttttaac tttagacaag aaatagaaga ctgtcagaaa aaaaaaata 4260  
 ggaagatctc gccccccgc aaccaaaatg gaaattctca agatactata tacaagtctt 4320  
 25 aaaccagttt cccattgag accatctctg gagctgcacg tctttataaa cgacccaagt 4380  
 ctttaaagtc attgttttcc cccaacggaa taatatttta aaaaccatga aaagttttgg 4440  
 aaatgtgaga aataggctct gctgggttga ccctgattca ctaattaaaa tgatccctct 4500  
 30 cctgttattc cctgagctct ttgcaatatt ataagttaat tcatatgggt ctgagcgatt 4560  
 atgcaaaact aatttgact gtccaggggt aattatccct gacacgggtta attaaatcct 4620  
 35 ttcaaggctt cgtctttccc ttttgtagca gccatccct tctcaacacg gaacttctgc 4680  
 ggctcgctgg aaatcacccc agccctaaat cttagttacc accctgagcc ttccagctcg 4740  
 gccgcctcct cggcctgaag actccccgcc tctccccgcc ccctcccctt ttcccaaaga 4800  
 40 tcagcgtttt ctgggagaaa cgctccggag ttgttgatga atgagaagag gactggaaag 4860  
 atgggtaaga ggaggggtga ggatgccgag ggggagcacc gaggtcatat cgccaacaga 4920  
 45 ttgtgcggct gtttgaggac ctccacaggc cccacagact cgtttatcac ccattctgac 4980  
 tccaatggtc ttgctaacaa gttggcgggt tttgcgcctg cagagagcct cctgccaaagt 5040  
 tagactgtgc agaagtaagg ggttggagcg gggggagcgg ctccggggca agagggcgta 5100  
 50 gagaaaggcc cggggnnngg nggtgtaagc gtctgaaagt ggcccacaaa tgcagcgctg 5160  
 tgattgggca gagagctgct gctggctcgc gatctctatc tccatctctt tatctatctc 5220  
 55 cgtctctctc cctgtttctc catttttctt tctttccttc tctctccttc cttecttcca 5280  
 tctttcttct ttcccttctt tttattcttc tattttcggt tcttttcaag gtttttttta 5340

aagccatgat gcaatttctt tggtattcac cgttgtccca aaacttgaag caagcctcgt 5400  
 atccaagggg ccaggcatgt tgcttcgggc tttgtgcaaa caggtggaat tgcgctgtgt 5460  
 5 aagcagtaag aactggtgct ggggagctgt cgcgcgaggg ggtggctttg ggagagcagg 5520  
 gttgctggcc gcgattgtta ctcccttga caatttcctc ctccccctcc cccaagaaga 5580  
 10 taggagaaag caccgcggat ctccctctca cccagggctc ggggcgcaga agatggagag 5640  
 aagattccac tctccccgga gcagataggg acggtcgcgc cagccaatca gagcgcggct 5700  
 cggcgccggc gctcccgcc gcctggggcc cgtgtcctc caggcaagcg aagttcccg 5760  
 15 aactcgtccg cctcgagggt ccgcgtcttt cttgcgcccg cggcccagcg gaggccgagg 5820  
 gagccgtcca aactttatta atctctctc ctttctttct ccctcagccc agtgcattctc 5880  
 20 aaaggtcagc cctcttcttt taaaagactg atattattaa tgactgaca attcctcccc 5940  
 cccttttctt ttttctctct tgcagggggg aaaaaaaggg aaatggtgaa aagagctttt 6000  
 tttatccttt tttttttttt gtccttcagt gggagcgttt agacagtcga ggaggttttg 6060  
 25 tccgagaaca aaacgcaggg ttgggaggtt ttgtgagagt gttgtttgtt gaagtggagc 6120  
 taagaaaaag cggcggcctt ctctcattg tgaagaaacc aatcagtggg atttggaata 6180  
 30 ctgttagcat tgtgcacttc ttctgtgtcc attgtgaggc gtttcttttc acaaggtttt 6240  
 tttttcagcc gatccagctg gccggaatga atagcgggtc aatgtgtaca cgctttgtcc 6300  
 ctccggcctt caagtagccc ccattgaata gactaagttg acctgcgtga cagtgaata 6360  
 35 acataataaa aaatacatga gccctgaat aggagcaggc gcataataa ataaaatggg 6420  
 tgacccaaac tggataaact gaatgacaaa acggtgaaag gggaacaaaa agatatttaa 6480  
 40 cagctagat tagcattaga atgcgatcta caaggcagaa caattgatga ataggtttac 6540  
 cggccaagaa agaaatggac taaatgccct ttgaatagat atgctttttg caaggcctt 6600  
 gaatagatat gcttttgcaa gggctgaatg ggaaaaggta aagatgaagc tatgcaaatg 6660  
 45 agccggggaa ctttttatat atattcttta aacacacaca cacactgcgg ggggaagagt 6720  
 gctgcctcgg gatgtttata gaagcaataa ttgccattat tagcattgtc tgcggcagat 6780  
 50 agaaattgaa caggttgga taatataggg tagcagtaat tattcttcta attaatggtc 6840  
 ctttgctact tgaaaaaaga aaaaaggaaa gaagtagtaa aagttatgca gaagttatgt 6900  
 ttccttgtgt ccatttgccc agcgtggaa tctgtggagc aggaagcctg gcaattccaa 6960  
 55 gatacgcgat gatcytcaaa cattccccggg agccagtcct gaggtcttgg cttcagggcc 7020

tagtttccat ttatgccgcg tttttgagag tctaatactg tgtctggcac atggtaggtg 7080  
 ctactgaat agtcgtggta tgaatgaatg aacgaatgaa tgaatgaatg aatgaatata 7140  
 5 agtttaaatgg gggaaacccg ggcctcctaa taaaggtagg ggctggggga tacctagggg 7200  
 cttccccagg aggatttctt ttttcatcat cccaccctg ggagaaaggt ccacgcagga 7260  
 10 tggtcgcttc ccccttgctg agagttttgc cttcagccta tctgggcccgc tggaaaagag 7320  
 gagaagaata aacaagagac aagcaactac tcccctaccg gcgttccgtc cttgtcctca 7380  
 ctgccaaatc cactccaaag ccgaggatgg tgagactgtg aagttgcaa gaaacacaga 7440  
 15 gccaccccc ttaaagaatt acgatata taaagtttgc ctctttcagg tttctctcct 7500  
 tggtcctgc ccctttccc tcccggtcc ttgtccttga ctgaacctca tgggacagag 7560  
 aacctcctgt cccccacgag gcaaggcgcg aaccgcgaga gatctggggg gccctttggt 7620  
 20 tccctgcgct gccctggagg cgtccataga ggcttttgc gccaaaggaca gcaattgttt 7680  
 tattttcgaat ggttgctcgc caggctgcgg gtcgcggggc caccagccg tcgaactttc 7740  
 25 cagtcgttat cagcgtgct cctaacttaa tggaataatg caaattatag cctgcccagc 7800  
 tgacacgtcc ctgcgaatgc gccggggctg agctctggcc agccgctctc tcgacgtcct 7860  
 ggacggccgg agggaatgaa gctctgaatt gtgacaaaag tggggggggc accccaaatt 7920  
 30 ctcaaagcaa tgttcttttt ttttctttt ttcttaagca attgagcctt accaaatgtc 7980  
 ggggccggcc gcacggaagc cttgcatatt ttaaagtgt acctgagcct tcgcggtttc 8040  
 35 agcttcactt aaaacatgca aattcttgaa attgaaaaat ctgaaaaact tccgaagagt 8100  
 tctatctgaa taaatccaaa tccattggga gtcgctttga ggagacaaaa cgcacagcga 8160  
 tttgggggtga gggatatttg tggggaggca ggacgtgctg gattgggttt ccaggggtcaa 8220  
 40 ggtgtctctg ggccttcgac gatagcctta gcgcagagca gggaagtggc accgctaggc 8280  
 agcaagctca gttgctctac tttgtgacc catccccca cccccccac cgccaccctt 8340  
 45 gctccgggc cactgccct ctctgcaagc tt 8372

<210> 13

50 <211> 4877

<212> DNA

<213> Homo sapiens

55

&lt;400&gt; 13

5  
 10  
 15  
 20  
 25  
 30  
 35  
 40  
 45  
 50  
 55

gcccgaacc cggaagtgag cggcggcagc tgcgaggctc ggagaaacag gcgcgcggg 60  
 ctccgcgccc ggccggaccc gggcccgaga tcatgatgct gccgccaccg ccgccaccac 120  
 ggagcgagaa gccagatag acgccccggc ggccccgggt cctggagtcc cgccgcctgc 180  
 tgcccggccg aggacccac ccgcctgcc gcccgatgct tgcagtggg cccgccatgg 240  
 acagggatta ccgcgagcat gaacccccgc cggcgggcag cctcctgtac agcccgcgc 300  
 ccctgcagag cgccatgctg cactgcccct actggaacac cttctcgtg ccgccatacc 360  
 ctgccttctc cagcgacagc cgcccgttca tgagctccgc ctcttcctc ggcagccagc 420  
 cctgcccaga caccagctat gccccgtgg ccaccgcctc cagcttgcca ccaaagacct 480  
 gcgactttgc tcaggactcc tcctattttg aggacttctc caacatctcc atcttctcct 540  
 cgtccgtgga ctccctgtcg gacatcgtgg acacgccga cttcctgccg gctgacagcc 600  
 tcaaccaggt gtccaccatc tgggacgata accctgcccc ctccaccac gataagctgt 660  
 tccagctcag caggccgttt gcaggcttcg aggactttct gccctccac agcaccgccg 720  
 ttctcgtcag ctaccaggag cagagtgtgc agagccagcc agaggaggag gacgaggctg 780  
 aggaggagga ggcggaggag ctggggcaca cagagacctc cgccgactac gtgccgtcca 840  
 agtccaagat cgggaagcag caccagacc gcgtggtgga gaccagcaca ctgtccagcg 900  
 tcccccccc agacatcacc tacaccctgg ccctgcctc ggacagcggg gccctgtctg 960  
 ccctgcagct agaggccatc acctacgcct gccagcaaca cgaggctcctg ctccccagcg 1020  
 ggcagcgcgc gggctttctc atcggcgatg gggccggcgt gggcaaaggc cggacggtgg 1080  
 ccggagtcat cctggagaac cacctgcgcg gccggaagaa agcattgtgg ttcagcgtct 1140  
 ccaacgacct caagtacgat gcggagcgcg acctgcggga catcgaagcc acgggcatcg 1200  
 cgggtgcacgc gctcagcaag atcaagtacg gtgacaccac tacctcagag ggcgtcctct 1260  
 tcgccacctc ctccgccctg attggggaga gccaggcccg tggccagcac cgcactcgcc 1320  
 tccggcagat cctggactgg tgtggggagg cctttgaggg cgtcatcgtg ttcgacgagt 1380  
 gtcacaaagc caagaatgcc ggctccacca agatgggcaa ggccgtgcta gacctgcaga 1440  
 acaagctgcc cctggccccg gtggtctacg ccagcgcac aggtgcctct gagcctcgga 1500  
 acatgatcta catgagccgc ttgggtatct ggggcgaggg cacacccttc cggaactttg 1560  
 aggagttcct gcacgccatc gagaagaggg gcgttggcgc catggagatc gtggccatgg 1620  
 acatgaaggt cagcggcatg tacatcgcac gccagctcag cttctccggc gtcaccttc 1680

gcatcgagga gatcccgtg gcccagcct tcgagtgcgt ctacaaccgc gcagccctgc 1740  
 tgtgggccga ggccctgaac gtgttcacgc aggcggccga ctggatcggc ctggagtcgc 1800  
 5 gcaagtcctt gtggggccag ttctggctcg cacaccagcg cttcttcaag tatctgtgca 1860  
 tcgcagccaa ggtgcgccgg ctggtggagc tggcccga gaagctggcg cgagacaagt 1920  
 10 gcgtggtcat cgggctgcag tccacgggcg aggcgcgcac gcgggaggtg ctgggggaga 1980  
 acgatgggca cctcaactgc ttctgtctcg ccgctgaagg cgtgttcctg tcgctaattc 2040  
 agaagcactt tccgtccacc aagagaaagc gggacagagg agcgggcagc aagcggaaac 2100  
 15 ggcgacctcg gggacgcggg gccaaagccc cccggctggc gtgcgagaca gcgggcgtca 2160  
 tccgcatcag tgacgacagc agcacggagt cggacctgg cctggacagc gacttcaact 2220  
 cctccccga gtccctggtg gatgacgacg ttgtcatcgt tgatgcagtc gggctcccca 2280  
 20 gtgacgaccg gggatccctg tgctctctgc agagagacc gcattggccc ggggtcctgg 2340  
 agcgggtgga gcggctgaag caggatctgc tggacaaagt gcgccggctg ggccgggaac 2400  
 25 tgccagtcaa caccctggac gagctcatcg accagctggg cggccccag cggtggcg 2460  
 agatgaccgg caggaaaggc cgcgtggtgt ccaggcccga cgggacggtg gccttcgagt 2520  
 cgccggcaga gcagggtctg tccatcgacc acgtgaacct cagggagaag cagcgcttca 2580  
 30 tgagcggcga gaagctcgtg gccatcatct cggaggctc cagctcgggt gtctccctcc 2640  
 aagccgaccg ccgtgtccag aaccagcggc gccgcgtgca catgacctg gagctgccgt 2700  
 35 ggagcgcga ccgcgccatc cagcagttcg gccgcacca ccggtccaac caggtctccg 2760  
 cgccagagta tgtcttctc atctcggagc tggccgggga gcgccggtc gcctccatcg 2820  
 tggccaagcg cctggagagt ctggggggcc tgaccacgg agaccgccgc gccacggagt 2880  
 40 cccgtgacct cagcaagtac aactttgaga acaagtatg caccggggc ctgcactgtg 2940  
 tcctcaccac catcctgagc cagactgaga acaaagtgc tgtgccccag ggataccctg 3000  
 45 gaggggtccc caccttcttc cgggacatga agcagggcct gctgtctgtg ggcattggtg 3060  
 gccgggagtc ccggaatggc tgcttgagc tggagaagga ctgttccatc accaagttcc 3120  
 tgaaccgcat cctggggctg gaggtgcaca agcagaatgc cctgttccag tacttctcag 3180  
 50 acaccttcga ccacctcatc gagatggaca agcgggaggg caaatacgac atgggcatcc 3240  
 tggaccttgc tcccgtatc gaggagatct acgaggagag ccagcaggtg ttcttggtc 3300  
 55 ccgggcaccc gcaggacggg caggtggtct tctacaagat cagcgtggac cgcggcctga 3360  
 agtgggagga cgcctttgcc aagtcgctgg cgctgacggg cccctatgac ggcttctacc 3420

tctcctacaa ggtccgcggt aacaagccca gctgcctgct ggcgagcag aaccgcggcc 3480  
 agttcttcac ggtgtacaag cccaacatcg gccggcagag ccagctggag gccctggaca 3540  
 5 gcctccgccc caagttccac cgggtcaccg cggaggaggc caaggagccc tgggagagtg 3600  
 gctacgcttt gtcgctgacg cactgcagcc acagcgctg gaaccggcac tgccggctgg 3660  
 10 cgcaggaggg taaggactgc ctgcaggggc tgccgctgcg gcaccactac atgctgtgcg 3720  
 gcgcgctgct gcgcgtgtgg ggccgcacg cgcgcgtcat ggccgacgtc agcagcagca 3780  
 gctacctgca gatcgtgcmg ctgaagacca aggacaggaa gaagcaagtg ggcatcaaga 3840  
 15 tccccgaggg ctgcgtgcmg cgggtgctgc aggagctgcm gctgatggat gcggacgtga 3900  
 agcgcaggca ggcmcccgc ctgggctgcm cgcggccgc cgcggcgcm ccgctggcm 3960  
 20 tgccttgcmg ccccgagag gtgctggacc tcacctacag ccccgcmg gaggccttc 4020  
 cgccgcccc gcacttctct tccccgcm cgtgtctct ggacgcmg cccggcgcm 4080  
 tgccgctggg cccccgac gccaggcm accctgcm cctcgcm cagggtgcm 4140  
 25 acatcaactt caaggaggtg ctggaggaca tgctgcmg gctgcacgm gggcgcm 4200  
 ccgagggcm gctgggggag ggcmggggg cggggggcm ggcmggcggt ggtccgagc 4260  
 30 ggcagagcm gatccagttc agcccacct tccccgcm ccaggctct ctctgacacg 4320  
 cctttaggcm aaacatgccc caagacacag ggaccgttt tcccctagga gcagcggtg 4380  
 ggagcagggc caaggtcccc tgaccactgc tcagaggagc ctaggcmct ggccgcmg 4440  
 35 ccttcagcm cgcacccgg ccccaacct gtcagcmct gcmgggcca ctcaggacag 4500  
 ctgggggcm gggcggtgca gggcmctct tgtgcmct ctcctaagta ggaagggcm 4560  
 40 ccgggtgcm gctctgggac tgggcacca caagggtca gtgggcca acccttgaaa 4620  
 tccgtgaaac cgggtggtcc caagagctag aaactcagga aaccaggt gctcagggc 4680  
 ccgcmctcm ggggtccgt ggggcagacc cctgctaata tatgcaatt tccctcccc 4740  
 45 agcccttccc tgaccctaa gttattgccc gctcacctct ccagggccc aggcgcmg 4800  
 gctggcaggg tggcmctgc ggtttctatg ttttatagc aagttctgat gtacatatgt 4860  
 50 aaaggacttt tttaaat 4877

<210> 14

55 <211> 1872



&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

5

&lt;400&gt; 14

	tcaggctgcc tgatctgccc agctttccag ctttcctctg gattccggcc tctggtcatc	60
10	cctccccacc ctctctccaa ggccctctcc tgggtctccct tcttctagaa ccccttcctc	120
	cacctccctc tctgcagaac ttctccttta cccccaccc cccaccactg ccccttttcc	180
	ttttctgacc tccttttgga gggctcagcg ctgccagac cataggagag atgtgggagg	240
15	ctcagttcct gggcttgctg tttctgcagc cgctttgggt ggctccagtg aagcctctcc	300
	agccaggggc tgagggtccc gtggtgtggg ccaggaggg ggctcctgcc cagctccctc	360
20	gcagccccac aatccccctc caggatctca gccttctgcg aagagcaggg gtcacttggc	420
	agcatcagcc agacagtggc ccgcccgtg ccgcccccg ccatcccctg gccccggcc	480
	ctcaccggc ggcgcctcc tcctgggggc ccaggccccg ccgctacacg gtgctgagcg	540
25	tgggtcccgg aggctgcgc agcgggaggc tgccctgca gcccgcgtc cagctggatg	600
	agcgcggccg gcagcgcggg gacttctcgc tatggctgcg ccagcccgg cgcgcgacg	660
30	ccggcgagta ccgcgcgcg gtgcacctca gggaccgcgc cctctcctgc cgctccgtc	720
	tgcgcctggg ccaggcctcg atgactgcca gcccccagg atctctcaga gcctccgact	780
	gggtcatttt gaactgctcc ttcagccgcc ctgaccgcc agcctctgtg cattggttcc	840
35	ggaaccgggg ccagggccga gtcctgttcc gggagtcccc ccatcaccac ttagcgga	900
	gcttctctt cctgccccaa gtcagcccca tggactctgg gccctggggc tgcactctca	960
40	cctacagaga tggcttcaac gtctccatca tgtataacct cactgttctg ggtctggagc	1020
	ccccaactcc cttgacagtg tacgctggag caggttccag ggtggggctg ccctgccgcc	1080
	tgctgctgg tgtggggacc cggctcttcc tcaactgcaa gtggactcct cctgggggag	1140
45	gccctgacct cctggtgact ggagacaatg gcgactttac ccttcgacta gaggatgtga	1200
	gccaggccca ggctgggacc tacacctgcc atatccatct gcaggaacag cagctcaatg	1260
50	ccactgtcac attggcaatc atcacagtga ctcccaaatc ctttgggtca cctggatccc	1320
	tggggaagct gctttgtgag gtgactccag tatctggaca agaacgcttt gtgtggagct	1380
	ctctggacac cccatcccag aggagtttct caggaccttg gctggaggca caggaggccc	1440
55	agctcctttc ccagccttgg caatgccagc tgtaccaggg ggagaggctt cttggagcag	1500

```

cagtgtactt cacagagctg tctagcccag gtgcccaacg ctctgggaga gccccaggtg 1560
ccctcccagc aggccacctc ctgctgtttc tcacccttgg tgcctttct ctgctccttt 1620
5  tggtgactgg agcctttggc tttcaccttt ggagaagaca gtggcgacca agacgatttt 1680
ctgccttaga gcaagggatt caccctcgcc aggctcagag caagatagag gagctggagc 1740
aagaaccgga gccggagccg gagccggaac cggagcccga gcccagagccc gagccggagc 1800
10 agctctgacc tggagctgag gcagccagca gatctcagca gcccagtcca aataaacgtc 1860
ctgtctagca gc 1872

15  <210> 15
    <211> 1201
20  <212> DNA
    <213> Homo sapiens

25  <220>
    <221> Unsure
30  <222> (697)..(698)
    <223> n = a, c, g or t

35  <220>

40  <221> Unsure
    <222> (715)..(715)
    <223> n = a, c, g or t
45

50  <220>
    <221> Unsure
    <222> (764)..(764)
55  <223> n = a, c, g or t

```

5    <220>  
     <221>    Unsure  
     <222>    (772)..(772)  
10   <223>    n = a, c, g or t  
  
15  
     <220>  
     <221>    Unsure  
20   <222>    (782)..(782)  
     <223>    n = a, c, g or t  
  
25  
  
     <220>  
30   <221>    Unsure  
     <222>    (835)..(835)  
35   <223>    n = a, c, g or t  
  
40  
     <220>  
     <221>    Unsure  
45   <222>    (849)..(849)  
     <223>    n = a, c, g or t  
  
50  
     <220>  
55   <221>    Unsure

<222> (880)..(880)

<223> n = a, c, g or t

5

<220>

10

<221> Unsure

<222> (886)..(886)

15 <223> n = a, c, g or t

20

<220>

<221> Unsure

25 <222> (931)..(931)

<223> n = a, c, g or t

30

<220>

35 <221> Unsure

<222> (935)..(935)

<223> n = a, c, g or t

40

45 <220>

<221> Unsure

<222> (944)..(944)

50

<223> n = a, c, g or t

55

<220>

<221> Unsure

5 <222> (950)..(950)

<223> n = a, c, g or t

10

<220>

15 <221> Unsure

<222> (966)..(966)

<223> n = a, c, g or t

20

25 <220>

<221> Unsure

<222> (976)..(976)

30

<223> n = a, c, g or t

35

<220>

<221> Unsure

40

<222> (983)..(983)

<223> n = a, c, g or t

45

<220>

50

<221> Unsure

<222> (988)..(988)

55 <223> n = a, c, g or t

5    <220>  
     <221>    Unsure  
     <222>    (1014)..(1014)  
10   <223>    n = a, c, g or t  
  
15  
     <220>  
     <221>    Unsure  
20   <222>    (1053)..(1054)  
     <223>    n = a, c, g or t  
  
25  
  
     <220>  
30   <221>    Unsure  
     <222>    (1061)..(1061)  
35   <223>    n = a, c, g or t  
  
40  
     <220>  
     <221>    Unsure  
45   <222>    (1066)..(1066)  
     <223>    n = a, c, g or t  
  
50  
  
     <220>  
55   <221>    Unsure

<222> (1076)..(1076)

<223> n = a, c, g or t

5

<220>

10

<221> Unsure

<222> (1093)..(1093)

15 <223> n = a, c, g or t

20

<220>

<221> Unsure

25 <222> (1100)..(1100)

<223> n = a, c, g or t

30

<220>

35 <221> Unsure

<222> (1104)..(1104)

<223> n = a, c, g or t

40

45 <220>

<221> Unsure

<222> (1104)..(1104)

50

<223> n = a, c, g or t

55

<220>

<221> Unsure

5 <222> (1115)..(1115)

<223> n = a, c, g or t

10

<220>

15 <221> Unsure

<222> (1121)..(1121)

<223> n = a, c, g or t

20

25 <220>

<221> Unsure

<222> (1129)..(1129)

30

<223> n = a, c, g or t

35

<220>

<221> Unsure

40

<222> (1134)..(1135)

<223> n = a, c, g or t

45

<220>

50

<221> Unsure

<222> (1144)..(1144)

55 <223> n = a, c, g or t



5 <220>  
<221> Unsure  
<222> (1149)..(1149)  
10 <223> n = a, c, g or t

15  
<220>  
<221> Unsure  
20 <222> (1153)..(1153)  
<223> n = a, c, g or t

25  
<220>  
30 <221> Unsure  
<222> (1169)..(1169)  
35 <223> n = a, c, g or t

40  
<220>  
<221> Unsure  
45 <222> (1178)..(1178)  
<223> n = a, c, g or t

50  
<220>  
55 <221> Unsure

<222> (1182)..(1182)

<223> n = a, c, g or t

5

<220>

10

<221> Unsure

<222> (1193)..(1193)

15

<223> n = a, c, g or t

20

<400> 15

	gagtctacgg cattgctgag gacgctgccc agggcatcgc taatgaggac gccgaccagg	60
	gcatcgctaa tgaggacacc acccagtgc tgcgcaacga ggaagccgcc cagggcatcg	120
25	ccgaggacgc catccagggc atcgccaacg aggaggttgc ccagggcatc gccaatgggg	180
	tcgccgcaca gggcatcgcc aatgaggacg ccacccaggg catcgccaac tgggacgccg	240
30	tccacggctt cgccaacggg gacgccgtcc tcagcttcgc caacggggac gccgcccagg	300
	gcatcgccaa cggggacgcc accaaggga tgggcaacga ggtcaccatc cacggcatcg	360
	ctaacgagga cgccgtccag ggcacgcta acgaggtggc cgcccagggc atcgccaacg	420
35	aggacgccgc ccagggaaac gccgaggatg tcgcacaggg catcgccaac gaggacgccg	480
	cccagggcat cgccaacaag gaggccgccc agggcatcgc caacgaggac gccgcccagg	540
40	gaatcgctga ggacgtcgca cagggcatcg ccaacgagga tgccgcccag ggcacgcca	600
	acgaggaggc cgcccagggc atcgccaaca gggtcgccgc ccagggcatc gccaatgacg	660
	ccacccaggg catcgccgag gacaccgcca ggcttttnca acgacgaacg ccgtncaagg	720
45	cattggttaa cgaggacgcc gtcttgggca ttggccaacg aacnacgccg tncaaggcat	780
	tnngnttaatg aaaaaatgga gttccaccgg tattcgaata accaaggaca cccgnccaag	840
50	ggcattggnc naactgggga cttccgtcca agggcctttt cccaangggg gacccccgcc	900
	caagggccct cctttaatgg gggtcgnccg nccangggcc tttntttacn ggggaccccc	960
	tccaangggc atttnttttt ttnggggncc ccccccaag gggttccctt tganggggaa	1020
55	gtttttccac gggatttttt taaaaaggga ccncttccc ngggentttt ttttanaaag	1080

gacccattcc aanttttttgn ttgnaaaagg accccttcct ngggtttant aaanngggac 1140  
 ccnccccang ggnttttatta aattggaanc ccccccang gnttttttta ttnggacccc 1200  
 5 c 1201  
  
 <210> 16  
 10 <211> 748  
 <212> DNA  
 <213> Homo sapiens  
 15  
  
 <220>  
 20 <221> Unsure  
 <222> (697)..(698)  
 <223> n = a, c, g or t  
 25  
  
 30 <220>  
 <221> Unsure  
 <222> (715)..(715)  
 35 <223> n = a, c, g or t  
  
 40  
  
 <400> 16  
 gagtctacgg cattgctgag gacgctgccc agggcatcgc taatgaggac gccgaccagg 60  
 45 gcatcgctaa tgaggacacc acccagtga tcgccaacga ggaagccgcc caggggcatcg 120  
 ccgaggacgc catccagggc atcgccaacg aggaggttgc ccagggcatc gccaatgggg 180  
 tcgccgcaca gggcatcgcc aatgaggacg ccacccaggg catcgccaac tgggacgccg 240  
 50 tccacggctt cgccaacggg gacgccgtcc tcagcttcgc caacggggac gccgcccagg 300  
 gcatcgccaa cggggacgcc accaaggga tgggcaacga ggtcaccatc cacggcatcg 360  
 55 ctaacgagga cgccgtccag ggcacgcta acgaggtggc cgcccagggc atcgccaacg 420  
 aggacgccgc ccaggaatc gccgaggatg tcgcacaggg catcgccaac gaggacgccg 480

cccagggcat cgccaacaag gaggccgcc agggcatcgc caacgaggac gccgcccagg 540  
 gaatcgctga ggacgtcgca cagggcatcg ccaacgagga tgccgcccag ggcatcgcca 600  
 5 acgaggaggc cgcccagggc atcgccaaca gggtcgccgc ccagggcatc gccaatgacg 660  
 ccaccaggg catcgccgag gacaccgcca ggctttinnca acgacgaacg ccgtncagg 720  
 10 cattgggtaa cgaggacgcc gtcttggg 748

<210> 17

15 <211> 1232

<212> DNA

<213> Homo sapiens  
 20

<220>

25 <221> Unsure

<222> (214)..(214)

<223> n = a, c, g or t  
 30

35 <220>

<221> Unsure

<222> (243)..(243)

<223> n = a, c, g or t  
 40

45

<220>

<221> Unsure

50

<222> (269)..(269)

<223> n = a, c, g or t

55

<220>

5 <221> Unsure

<222> (291)..(291)

10 <223> n = a, c, g or t

15 <220>

<221> Unsure

<222> (294)..(294)

20 <223> n = a, c, g or t

25

<220>

<221> Unsure

30 <222> (317)..(317)

<223> n = a, c, g or t

35

<220>

40 <221> Unsure

<222> (334)..(335)

45 <223> n = a, c, g or t

50 <220>

<221> Unsure

55 <222> (341)..(341)

<223> n = a, c, g or t

5

<220>

<221> Unsure

10

<222> (358)..(358)

<223> n = a, c, g or t

15

<220>

20

<221> Unsure

<222> (379)..(379)

25

<223> n = a, c, g or t

30

<220>

<221> Unsure

35

<222> (392)..(392)

<223> n = a, c, g or t

40

<220>

45

<221> Unsure

<222> (394)..(395)

<223> n = a, c, g or t

50

55

<220>

<221> Unsure  
 <222> (405)..(405)  
 5 <223> n = a, c, g or t  
  
 10  
 <220>  
 <221> Unsure  
 15 <222> (413)..(413)  
 <223> n = a, c, g or t  
  
 20  
 <220>  
 25 <221> Unsure  
 <222> (416)..(416)  
 <223> n = a, c, g or t  
 30  
  
 35 <220>  
 <221> Unsure  
 <222> (418)..(418)  
 40 <223> n = a, c, g or t  
  
 45  
 <220>  
 <221> Unsure  
 50 <222> (423)..(423)  
 <223> n = a, c, g or t  
  
 55

<220>

5 <221> Unsure

<222> (425) .. (425)

<223> n = a, c, g or t

10

15 <220>

<221> Unsure

<222> (429) .. (430)

20 <223> n = a, c, g or t

25

<220>

<221> Unsure

30 <222> (434) .. (434)

<223> n = a, c, g or t

35

<220>

40 <221> Unsure

<222> (439) .. (440)

45 <223> n = a, c, g or t

50

<220>

<221> Unsure

55 <222> (442) .. (442)



<223> n = a, c, g or t

5

<220>

<221> Unsure

10

<222> (446)..(447)

<223> n = a, c, g or t

15

<220>

20

<221> Unsure

<222> (454)..(454)

25

<223> n = a, c, g or t

30

<220>

<221> Unsure

35

<222> (456)..(456)

<223> n = a, c, g or t

40

<220>

45

<221> Unsure

<222> (459)..(460)

<223> n = a, c, g or t

50

55 <220>

<221> Unsure

<222> (467)..(467)

5 <223> n = a, c, g or t

10

<220>

<221> Unsure

15 <222> (473)..(474)

<223> n = a, c, g or t

20

<220>

25 <221> Unsure

<222> (485)..(486)

<223> n = a, c, g or t

30

35 <220>

<221> Unsure

<222> (491)..(491)

40

<223> n = a, c, g or t

45

<220>

<221> Unsure

50

<222> (499)..(500)

<223> n = a, c, g or t

55

<220>  
5 <221> Unsure  
<222> (502)..(502)  
<223> n = a, c, g or t  
10  
  
15 <220>  
<221> Unsure  
<222> (505)..(505)  
20 <223> n = a, c, g or t  
  
25  
<220>  
<221> Unsure  
30 <222> (509)..(509)  
<223> n = a, c, g or t  
35  
  
40 <220>  
<221> Unsure  
<222> (513)..(513)  
45 <223> n = a, c, g or t  
  
50 <220>  
<221> Unsure  
55 <222> (516)..(517)

<223> n = a, c, g or t

5

<220>

<221> Unsure

10

<222> (520)..(520)

<223> n = a, c, g or t

15

<220>

20

<221> Unsure

<222> (525)..(525)

25

<223> n = a, c, g or t

30

<220>

<221> Unsure

35

<222> (528)..(528)

<223> n = a, c, g or t

40

<220>

45

<221> Unsure

<222> (532)..(532)

<223> n = a, c, g or t

50

55 <220>

<221> Unsure  
 <222> (534)..(534)  
 5 <223> n = a, c, g or t  
  
 10  
 <220>  
 <221> Unsure  
 15 <222> (537)..(539)  
 <223> n = a, c, g or t  
  
 20  
  
 <220>  
 25 <221> Unsure  
 <222> (548)..(549)  
 <223> n = a, c, g or t  
 30  
  
 35 <220>  
 <221> Unsure  
 <222> (552)..(552)  
 40 <223> n = a, c, g or t  
  
 45  
 <220>  
 <221> Unsure  
 50 <222> (555)..(555)  
 <223> n = a, c, g or t  
  
 55

<220>  
 5 <221> Unsure  
 <222> (557)..(557)  
 <223> n = a, c, g or t  
 10  
  
 15 <220>  
 <221> Unsure  
 <222> (562)..(562)  
 20 <223> n = a, c, g or t  
  
 25  
 <220>  
 <221> Unsure  
 30 <222> (569)..(569)  
 <223> n = a, c, g or t  
 35  
  
 <220>  
 40 <221> Unsure  
 <222> (586)..(587)  
 45 <223> n = a, c, g or t  
  
 50  
 <220>  
 <221> Unsure  
 55 <222> (590)..(590)

<223> n = a, c, g or t

5

<220>

<221> Unsure

10

<222> (592)..(592)

<223> n = a, c, g or t

15

<220>

20

<221> Unsure

<222> (594)..(594)

25 <223> n = a, c, g or t

30

<220>

<221> Unsure

35 <222> (597)..(597)

<223> n = a, c, g or t

40

<220>

45 <221> Unsure

<222> (602)..(603)

<223> n = a, c, g or t

50

55 <220>

<221> Unsure

<222> (606)..(606)

5 <223> n = a, c, g or t

10

<220>

<221> Unsure

15 <222> (611)..(611)

<223> n = a, c, g or t

20

<220>

25 <221> Unsure

<222> (618)..(619)

<223> n = a, c, g or t

30

35 <220>

<221> Unsure

<222> (622)..(622)

40

<223> n = a, c, g or t

45

<220>

<221> Unsure

50

<222> (626)..(626)

<223> n = a, c, g or t

55



<220>

5 <221> Unsure

<222> (631)..(631)

10 <223> n = a, c, g or t

15 <220>

<221> Unsure

<222> (635)..(635)

20 <223> n = a, c, g or t

25

<220>

<221> Unsure

30 <222> (637)..(637)

<223> n = a, c, g or t

35

<220>

40 <221> Unsure

<222> (643)..(643)

45 <223> n = a, c, g or t

50

<220>

<221> Unsure

55 <222> (645)..(645)

<223> n = a, c, g or t

5

<220>

<221> Unsure

10

<222> (648)..(648)

<223> n = a, c, g or t

15

<220>

20

<221> Unsure

<222> (650)..(650)

25

<223> n = a, c, g or t

30

<220>

<221> Unsure

35

<222> (653)..(653)

<223> n = a, c, g or t

40

<220>

45

<221> Unsure

<222> (655)..(655)

<223> n = a, c, g or t

50

55 <220>

<221> Unsure  
<222> (658)..(658)  
5 <223> n = a, c, g or t  
  
10  
<220>  
<221> Unsure  
15 <222> (660)..(660)  
<223> n = a, c, g or t  
  
20  
<220>  
25 <221> Unsure  
<222> (663)..(663)  
<223> n = a, c, g or t  
30  
  
35 <220>  
<221> Unsure  
<222> (668)..(668)  
40 <223> n = a, c, g or t  
  
45  
<220>  
<221> Unsure  
50 <222> (670)..(670)  
<223> n = a, c, g or t  
  
55

<220>

5 <221> Unsure

<222> (672)..(673)

10 <223> n = a, c, g or t

15 <220>

<221> Unsure

<222> (677)..(677)

20 <223> n = a, c, g or t

25

<220>

<221> Unsure

30 <222> (679)..(679)

<223> n = a, c, g or t

35

<220>

40 <221> Unsure

<222> (683)..(683)

45 <223> n = a, c, g or t

50

<220>

<221> Unsure

55 <222> (687)..(688)

<223> n = a, c, g or t

5

<220>

<221> Unsure

10

<222> (691)..(691)

<223> n = a, c, g or t

15

<220>

20

<221> Unsure

<222> (693)..(693)

25 <223> n = a, c, g or t

30

<220>

<221> Unsure

35 <222> (696)..(696)

<223> n = a, c, g or t

40

<220>

45 <221> Unsure

<222> (703)..(703)

<223> n = a, c, g or t

50

55 <220>

<221> Unsure  
 <222> (705)..(705)  
 5 <223> n = a, c, g or t  
  
 10  
 <220>  
 <221> Unsure  
 15 <222> (714)..(714)  
 <223> n = a, c, g or t  
  
 20  
 <220>  
 25 <221> Unsure  
 <222> (720)..(721)  
 <223> n = a, c, g or t  
 30  
  
 35 <220>  
 <221> Unsure  
 <222> (725)..(725)  
 40 <223> n = a, c, g or t  
  
 45  
 <220>  
 <221> Unsure  
 50 <222> (727)..(727)  
 <223> n = a, c, g or t  
  
 55

<220>  
5 <221> Unsure  
<222> (730)..(731)  
10 <223> n = a, c, g or t  
  
15 <220>  
<221> Unsure  
<222> (734)..(734)  
20 <223> n = a, c, g or t  
  
25  
<220>  
<221> Unsure  
30 <222> (750)..(750)  
<223> n = a, c, g or t  
35  
  
40 <220>  
<221> Unsure  
<222> (755)..(756)  
45 <223> n = a, c, g or t  
  
50  
<220>  
<221> Unsure  
55 <222> (760)..(762)

<223> n = a, c, g or t

5

<220>

<221> Unsure

10

<222> (767)..(767)

<223> n = a, c, g or t

15

<220>

20

<221> Unsure

<222> (775)..(775)

25

<223> n = a, c, g or t

30

<220>

<221> Unsure

35

<222> (780)..(781)

<223> n = a, c, g or t

40

<220>

45

<221> Unsure

<222> (784)..(784)

<223> n = a, c, g or t

50

55 <220>



<221> Unsure

<222> (787)..(787)

5 <223> n = a, c, g or t

10

<220>

<221> Unsure

15 <222> (789)..(789)

<223> n = a, c, g or t

20

<220>

25 <221> Unsure

<222> (794)..(796)

<223> n = a, c, g or t

30

35 <220>

<221> Unsure

<222> (802)..(802)

40

<223> n = a, c, g or t

45

<220>

<221> Unsure

50

<222> (804)..(804)

<223> n = a, c, g or t

55

<220>  
5 <221> Unsure  
<222> (806)..(806)  
10 <223> n = a, c, g or t  
  
15 <220>  
<221> Unsure  
<222> (814)..(814)  
20 <223> n = a, c, g or t  
  
25  
<220>  
<221> Unsure  
30 <222> (826)..(827)  
<223> n = a, c, g or t  
35  
  
40 <220>  
<221> Unsure  
<222> (834)..(834)  
45 <223> n = a, c, g or t  
  
50  
<220>  
<221> Unsure  
55 <222> (847)..(847)

<223> n = a, c, g or t

5

<220>

<221> Unsure

10

<222> (850)..(850)

<223> n = a, c, g or t

15

<220>

20

<221> Unsure

<222> (853)..(855)

25

<223> n = a, c, g or t

30

<220>

<221> Unsure

35

<222> (864)..(865)

<223> n = a, c, g or t

40

<220>

45

<221> Unsure

<222> (869)..(870)

<223> n = a, c, g or t

50

55 <220>

<221> Unsure  
 <222> (872)..(872)  
 5 <223> n = a, c, g or t  
  
 10  
 <220>  
 <221> Unsure  
 15 <222> (874)..(876)  
 <223> n = a, c, g or t  
  
 20  
 <220>  
 25 <221> Unsure  
 <222> (878)..(878)  
 <223> n = a, c, g or t  
 30  
  
 35 <220>  
 <221> Unsure  
 <222> (883)..(883)  
 40 <223> n = a, c, g or t  
  
 45  
 <220>  
 <221> Unsure  
 50 <222> (887)..(887)  
 <223> n = a, c, g or t  
  
 55

<220>

5 <221> Unsure

<222> (889) .. (889)

10 <223> n = a, c, g or t

15 <220>

<221> Unsure

<222> (900) .. (900)

20 <223> n = a, c, g or t

25

<220>

<221> Unsure

30 <222> (902) .. (902)

<223> n = a, c, g or t

35

<220>

40 <221> Unsure

<222> (904) .. (905)

45 <223> n = a, c, g or t

50

<220>

<221> Unsure

55 <222> (910) .. (910)

<223> n = a, c, g or t

5

<220>

<221> Unsure

10

<222> (915)..(916)

<223> n = a, c, g or t

15

<220>

20

<221> Unsure

<222> (918)..(918)

25 <223> n = a, c, g or t

30

<220>

<221> Unsure

35 <222> (923)..(923)

<223> n = a, c, g or t

40

<220>

45 <221> Unsure

<222> (925)..(925)

<223> n = a, c, g or t

50

55 <220>

<221> Unsure  
 <222> (930)..(930)  
 5 <223> n = a, c, g or t  
  
 10  
 <220>  
 <221> Unsure  
 15 <222> (933)..(935)  
 <223> n = a, c, g or t  
  
 20  
  
 <220>  
 25 <221> Unsure  
 <222> (937)..(938)  
 <223> n = a, c, g or t  
 30  
  
 35 <220>  
 <221> Unsure  
 <222> (944)..(946)  
 40 <223> n = a, c, g or t  
  
 45  
 <220>  
 <221> Unsure  
 50 <222> (949)..(949)  
 <223> n = a, c, g or t  
  
 55

<220>  
 5 <221> Unsure  
 <222> (952)..(952)  
 10 <223> n = a, c, g or t  
  
 15 <220>  
 <221> Unsure  
 <222> (954)..(954)  
 20 <223> n = a, c, g or t  
  
 25  
 <220>  
 <221> Unsure  
 30 <222> (956)..(956)  
 <223> n = a, c, g or t  
 35  
  
 <220>  
 40 <221> Unsure  
 <222> (958)..(960)  
 45 <223> n = a, c, g or t  
  
 50  
 <220>  
 <221> Unsure  
 55 <222> (962)..(967)



<223> n = a, c, g or t

5

<220>

<221> Unsure

10

<222> (970)..(972)

<223> n = a, c, g or t

15

<220>

20

<221> Unsure

<222> (974)..(974)

25 <223> n = a, c, g or t

.

30

<220>

<221> Unsure

35 <222> (978)..(978)

<223> n = a, c, g or t

40

<220>

45 <221> Unsure

<222> (981)..(982)

<223> n = a, c, g or t

50

55 <220>

<221> Unsure

<222> (996)..(997)

5 <223> n = a, c, g or t

10

<220>

<221> Unsure

15 <222> (1000)..(1000)

<223> n = a, c, g or t

20

<220>

25 <221> Unsure

<222> (1005)..(1006)

<223> n = a, c, g or t

30

35 <220>

<221> Unsure

<222> (1009)..(1012)

40 <223> n = a, c, g or t

45

<220>

<221> Unsure

50 <222> (1015)..(1015)

<223> n = a, c, g or t

55

<220>  
5 <221> Unsure  
<222> (1027)..(1027)  
10 <223> n = a, c, g or t  
  
15 <220>  
<221> Unsure  
<222> (1030)..(1030)  
20 <223> n = a, c, g or t  
  
25  
<220>  
<221> Unsure  
30 <222> (1032)..(1032)  
<223> n = a, c, g or t  
35  
  
40 <220>  
<221> Unsure  
<222> (1035)..(1035)  
45 <223> n = a, c, g or t  
  
50  
<220>  
<221> Unsure  
55 <222> (1039)..(1039)

<223> n = a, c, g or t

5

<220>

<221> Unsure

10

<222> (1042)..(1042)

<223> n = a, c, g or t

15

<220>

20

<221> Unsure

<222> (1045)..(1047)

25

<223> n = a, c, g or t

30

<220>

<221> Unsure

35

<222> (1055)..(1055)

<223> n = a, c, g or t

40

<220>

45

<221> Unsure

<222> (1061)..(1061)

<223> n = a, c, g or t

50

55 <220>

<221> Unsure  
 <222> (1076)..(1076)  
 5 <223> n = a, c, g or t  
  
 10  
 <220>  
 <221> Unsure  
 15 <222> (1081)..(1082)  
 <223> n = a, c, g or t  
  
 20  
 <220>  
 25 <221> Unsure  
 <222> (1086)..(1086)  
 <223> n = a, c, g or t  
 30  
  
 35 <220>  
 <221> Unsure  
 <222> (1091)..(1091)  
 40 <223> n = a, c, g or t  
  
 45  
 <220>  
 <221> Unsure  
 50 <222> (1094)..(1096)  
 <223> n = a, c, g or t  
  
 55

<220>

5 <221> Unsure

<222> (1103)..(1103)

10 <223> n = a, c, g or t

15 <220>

<221> Unsure

<222> (1105)..(1107)

20 <223> n = a, c, g or t

25

<220>

<221> Unsure

30 <222> (1110)..(1111)

<223> n = a, c, g or t

35

<220>

40 <221> Unsure

<222> (1116)..(1118)

45 <223> n = a, c, g or t

50

<220>

<221> Unsure

55 <222> (1126)..(1127)

<223> n = a, c, g or t

5

<220>

<221> Unsure

10

<222> (1130)..(1130)

<223> n = a, c, g or t

15

<220>

20

<221> Unsure

<222> (1132)..(1134)

25

<223> n = a, c, g or t

30

<220>

<221> Unsure

35

<222> (1136)..(1136)

<223> n = a, c, g or t

40

<220>

45

<221> Unsure

<222> (1141)..(1141)

<223> n = a, c, g or t

50

55

<220>

<221> Unsure  
 <222> (1143)..(1144)  
 5 <223> n = a, c, g or t  
  
 10  
 <220>  
 <221> Unsure  
 15 <222> (1149)..(1149)  
 <223> n = a, c, g or t  
  
 20  
 <220>  
 25 <221> Unsure  
 <222> (1152)..(1155)  
 <223> n = a, c, g or t  
 30  
  
 35 <220>  
 <221> Unsure  
 <222> (1159)..(1160)  
 40 <223> n = a, c, g or t  
  
 45  
 <220>  
 <221> Unsure  
 50 <222> (1165)..(1166)  
 <223> n = a, c, g or t  
  
 55



<220>  
5 <221> Unsure  
<222> (1169)..(1170)  
10 <223> n = a, c, g or t  
  
15 <220>  
<221> Unsure  
<222> (1172)..(1172)  
20 <223> n = a, c, g or t  
  
25  
<220>  
<221> Unsure  
30 <222> (1176)..(1178)  
<223> n = a, c, g or t  
35  
  
40 <220>  
<221> Unsure  
<222> (1180)..(1180)  
45 <223> n = a, c, g or t  
  
50  
<220>  
<221> Unsure  
55 <222> (1182)..(1182)

<223> n = a, c, g or t

5

<220>

<221> Unsure

10

<222> (1184)..(1184)

<223> n = a, c, g or t

15

<220>

20

<221> Unsure

<222> (1186)..(1187)

25 <223> n = a, c, g or t

30

<220>

<221> Unsure

35 <222> (1189)..(1189)

<223> n = a, c, g or t

40

<220>

45 <221> Unsure

<222> (1208)..(1208)

<223> n = a, c, g or t

50

55 <220>

<221> Unsure  
 <222> (1212)..(1212)  
 5 <223> n = a, c, g or t  
  
 10  
 <220>  
 <221> Unsure  
 15 <222> (1215)..(1216)  
 <223> n = a, c, g or t  
  
 20  
 <220>  
 25 <221> Unsure  
 <222> (1227)..(1227)  
 <223> n = a, c, g or t  
 30  
  
 35 <220>  
 <221> Unsure  
 <222> (1232)..(1232)  
 40 <223> n = a, c, g or t  
  
 45  
 <400> 17  
 ctgaggctgg ggctggggct ggggctgagg ctggagctgg gactgaggct ggggctgggg 60  
 50 ctggggctgg ggctgaggct ggggctgggg ctggggctgg ggctgggact gaggctgggg 120  
 ctggggctga ggctggggct gggactgagg ctggggctgg gactgaggct ggggctgggg 180  
 ctgaggttgg ggctgggact gaggctgggg ctanggctgg ggctgaggct ggggctaggg 240  
 55 ctnaggctga gggtggggct ggggctggng ctgacgctgg ggctgaggct nggnctgagg 300

ctggagctgg ggctgangct ggggctgggg ctgnngctga nctggggctg aggctccngc 360  
 tgaagctgag gctggggcnt aacgctgagc tngnngctgg tgctnatgct tgnctnanaa 420  
 5 tngnngatggn ctgnggctnn cntccnngac aaananttnn aacttgnggt ttnntcctgg 480  
 gaatnnaaat ntccaccann tntgnaaant tangcnnttn ggacnaanaa anantcnna 540  
 antctaannc cncnanaana tntaggana tgtttacaca agcaannatn tnancanac 600  
 10 annccnctc nttaaant gnattnaaaa naaanantga aangncncn ttnanccncn 660  
 tnttaantn gnaacntna ctnactnnca nanatntta aantnggaaa caancacacn 720  
 15 ntttnanacn nctnacttcg gagaataaan actcnnccn nnaatgnctc agacnacccn 780  
 ntcttngng cacnnnaaaa tnanancctt cttnttttga taccnnaaa aaanaaaac 840  
 cactttnaan aannnttta ttcnnaatnn cnannntnta canagntnt tcacattctn 900  
 20 ancnnatttn tccannntnta tntnccctn ttnnncnnat attnnncana ananantnnn 960  
 cnnnnnnacn nncnccnta nnaatattgc acaacnnaa aatannacnn nntntataa 1020  
 25 aaatcanaan antancacna cncnnnatc cctanaagt ntaaaaactc tatgtncnnc 1080  
 nntctntaat ntannncaaa tanannnctn nttggnnat caccannacn tnnanaccc 1140  
 nannccntant annntacnn cagcnnacnn tntttnntn tntntnnana acccaactcc 1200  
 30 cttatttnat ancanntcac tctccntat cn 1232

<210> 18  
 35 <211> 387  
 <212> PRT  
 40 <213> Homo sapiens

<400> 18  
 45 Met Tyr Ser Met Met Met Glu Thr Asp Leu His Ser Pro Gly Gly Ala  
 1 5 10 15  
 Gln Ala Pro Thr Asn Leu Ser Gly Pro Ala Gly Ala Gly Gly Gly Gly  
 50 20 25 30  
 Gly Gly Gly Gly Gly Gly Gly Gly Gly Gly Gly Ala Lys Ala Asn Gln  
 35 40 45  
 55 Asp Arg Val Lys Arg Pro Met Asn Ala Phe Met Val Trp Ser Arg Gly  
 50 55 60

	Gln	Arg	Arg	Lys	Met	Ala	Gln	Glu	Asn	Pro	Lys	Met	His	Asn	Ser	Glu	65	70	75	80
5	Ile	Ser	Lys	Arg	Leu	Gly	Ala	Glu	Trp	Lys	Val	Met	Ser	Glu	Ala	Glu	85	90	95	
	Lys	Arg	Pro	Phe	Ile	Asp	Glu	Ala	Lys	Arg	Leu	Arg	Ala	Leu	His	Met	100	105	110	
10	Lys	Glu	His	Pro	Asp	Tyr	Lys	Tyr	Arg	Pro	Arg	Arg	Lys	Thr	Lys	Thr	115	120	125	
	Leu	Leu	Lys	Lys	Asp	Lys	Tyr	Ser	Leu	Ala	Gly	Gly	Leu	Leu	Ala	Ala	130	135	140	
15	Gly	Ala	Gly	Gly	Gly	Gly	Ala	Ala	Val	Ala	Met	Gly	Val	Gly	Val	Gly	145	150	155	160
	Val	Gly	Ala	Ala	Pro	Val	Gly	Gln	Arg	Leu	Glu	Ser	Pro	Gly	Gly	Ala	165	170	175	
20	Ala	Gly	Gly	Ala	Tyr	Ala	His	Val	Asn	Gly	Trp	Ala	Asn	Gly	Ala	Tyr	180	185	190	
	Pro	Gly	Ser	Val	Ala	Ala	Ala	Ala	Ala	Ala	Ala	Ala	Met	Met	Gln	Glu	195	200	205	
	Ala	Gln	Leu	Ala	Tyr	Gly	Gln	His	Pro	Gly	Ala	Gly	Gly	Ala	His	Pro	210	215	220	
30	His	Arg	Thr	Pro	Ala	His	Pro	His	Pro	His	His	Pro	His	Ala	His	Pro	225	230	235	240
	His	Asn	Pro	Gln	Pro	Met	His	Arg	Tyr	Asp	Met	Gly	Ala	Leu	Gln	Tyr	245	250	255	
35	Ser	Pro	Ile	Ser	Asn	Ser	Gln	Gly	Tyr	Met	Ser	Ala	Ser	Pro	Ser	Gly	260	265	270	
	Tyr	Gly	Gly	Leu	Pro	Tyr	Gly	Ala	Ala	Ala	Ala	Ala	Ala	Ala	Ala	His	275	280	285	
	Gln	Asn	Ser	Ala	Val	Ala	Ala	Ala	Ala	Ala	Ala	Ala	Ala	Ala	Ser	Ser	290	295	300	
45	Gly	Ala	Leu	Gly	Ala	Leu	Gly	Ser	Leu	Val	Lys	Ser	Glu	Pro	Ser	Gly	305	310	315	320
	Ser	Pro	Pro	Ala	Pro	Ala	His	Ser	Arg	Ala	Pro	Cys	Pro	Gly	Asp	Leu	325	330	335	
50	Arg	Glu	Met	Ile	Ser	Met	Tyr	Leu	Pro	Ala	Gly	Glu	Gly	Gly	Asp	Pro	340	345	350	
	Ala	Ala	Ala	Ala	Ala	Ala	Ala	Ala	Gln	Ser	Arg	Leu	His	Ser	Leu	Pro	355	360	365	

Gln His Tyr Gln Gly Ala Gly Ala Gly Val Asn Gly Thr Val Pro Leu  
 370 375 380

5 Thr His Ile  
 385

<210> 19

<211> 317

10 <212> PRT

<213> Homo sapiens

15

<400> 19

20 Met Tyr Asn Met Met Glu Thr Glu Leu Lys Pro Pro Gly Pro Gln Gln  
 1 5 10 15

Thr Ser Gly Gly Gly Gly Gly Asn Ser Thr Ala Ala Ala Ala Gly Gly  
 20 25 30

25 Asn Gln Lys Asn Ser Pro Asp Arg Val Lys Arg Pro Met Asn Ala Phe  
 35 40 45

Met Val Trp Ser Arg Gly Gln Arg Arg Lys Met Ala Gln Glu Asn Pro  
 50 55 60

30 Lys Met His Asn Ser Glu Ile Ser Lys Arg Leu Gly Ala Glu Trp Lys  
 65 70 75 80

Leu Leu Ser Glu Thr Glu Lys Arg Pro Phe Ile Asp Glu Ala Lys Arg  
 85 90 95

35 Leu Arg Ala Leu His Met Lys Glu His Pro Asp Tyr Lys Tyr Arg Pro  
 100 105 110

40 Arg Arg Lys Thr Lys Thr Leu Met Lys Lys Asp Lys Tyr Thr Leu Pro  
 115 120 125

Gly Gly Leu Leu Ala Pro Gly Gly Asn Ser Met Ala Ser Gly Val Gly  
 130 135 140

45 Val Gly Ala Gly Leu Gly Ala Gly Val Asn Gln Arg Met Asp Ser Tyr  
 145 150 155 160

Ala His Met Asn Gly Trp Ser Asn Gly Ser Tyr Ser Met Met Gln Asp  
 165 170 175

50 Gln Leu Gly Tyr Pro Gln His Pro Gly Leu Asn Ala His Gly Ala Ala  
 180 185 190

55 Gln Met Gln Pro Met His Arg Tyr Asp Val Ser Ala Leu Gln Tyr Asn  
 195 200 205

Ser Met Thr Ser Ser Gln Thr Tyr Met Asn Gly Ser Pro Thr Tyr Ser  
 210 215 220  
 5 Met Ser Tyr Ser Gln Gln Gly Thr Pro Gly Met Ala Leu Gly Ser Met  
 225 230 235 240  
 Gly Ser Val Val Lys Ser Glu Ala Ser Ser Ser Pro Pro Val Val Thr  
 245 250 255  
 10 Ser Ser Ser His Ser Arg Ala Pro Cys Gln Ala Gly Asp Leu Arg Asp  
 260 265 270  
 Met Ile Ser Met Tyr Leu Pro Gly Ala Glu Val Pro Glu Pro Ala Ala  
 275 280 285  
 15 Pro Ser Arg Leu His Met Ser Gln His Tyr Gln Ser Gly Pro Val Pro  
 290 295 300  
 Gly Thr Ala Ile Asn Gly Thr Leu Pro Leu Ser His Met  
 305 310 315  
 20 <210> 20  
 <211> 443  
 25 <212> PRT  
 <213> Homo sapiens  
 30 <400> 20  
 35 Met Arg Pro Val Arg Glu Asn Ser Ser Gly Ala Arg Ser Pro Arg Val  
 1 5 10 15  
 Pro Ala Asp Leu Ala Arg Ser Ile Leu Ile Ser Leu Pro Phe Pro Pro  
 20 25 30  
 40 Asp Ser Leu Ala His Arg Pro Pro Ser Ser Ala Pro Thr Glu Ser Gln  
 35 40 45  
 Gly Leu Phe Thr Val Ala Ala Pro Ala Pro Gly Ala Pro Ser Pro Pro  
 50 55 60  
 45 Ala Thr Leu Ala His Leu Leu Pro Ala Pro Ala Met Tyr Ser Leu Leu  
 65 70 75 80  
 Glu Thr Glu Leu Lys Asn Pro Val Gly Thr Pro Thr Gln Ala Ala Gly  
 85 90 95  
 50 Thr Gly Gly Pro Ala Ala Pro Gly Gly Ala Gly Lys Ser Ser Ala Asn  
 100 105 110  
 55 Ala Ala Gly Gly Ala Asn Ser Gly Gly Gly Ser Ser Gly Gly Ala Ser  
 115 120 125

Gly Gly Gly Gly Gly Thr Asp Gln Asp Arg Val Lys Arg Pro Met Asn  
 130 135 140  
 5 Ala Phe Met Val Trp Ser Arg Gly Gln Arg Arg Lys Met Ala Leu Glu  
 145 150 155 160  
 Asn Pro Lys Met His Asn Ser Glu Ile Ser Lys Arg Leu Gly Ala Asp  
 165 170 175  
 10 Trp Lys Leu Leu Thr Asp Ala Glu Lys Arg Pro Phe Ile Asp Glu Ala  
 180 185 190  
 Lys Arg Leu Arg Ala Val His Met Lys Glu Tyr Pro Asp Tyr Lys Tyr  
 195 200 205  
 15 Arg Pro Arg Arg Lys Thr Lys Thr Leu Leu Lys Lys Asp Lys Tyr Ser  
 210 215 220  
 Leu Pro Ser Gly Leu Leu Pro Pro Gly Ala Ala Ala Ala Ala Ala Ala  
 225 230 235 240  
 B<sup>1</sup> Ala Ala Ala Ala Ala Ala Ala Ala Ser Ser Pro Val Gly Val Gly Gln  
 245 250 255  
 25 Arg Leu Asp Thr Tyr Thr His Val Asn Gly Trp Ala Asn Gly Ala Tyr  
 260 265 270  
 Ser Leu Val Gln Glu Gln Leu Gly Tyr Ala Gln Pro Pro Ser Met Ser  
 275 280 285  
 30 Ser Pro Pro Pro Pro Pro Ala Leu His Arg Tyr Asp Met Ala Gly Leu  
 290 295 300  
 Gln Tyr Ser Pro Met Met Pro Pro Gly Ala Gln Ser Tyr Met Asn Val  
 305 310 315 320  
 Ala Ala Ala Ala Ala Ala Ala Ser Gly Tyr Gly Gly Met Ala Pro Ser  
 325 330 335  
 40 Ala Thr Ala Ala Ala Ala Ala Ala Tyr Gly Gln Gln Pro Ala Thr Ala  
 340 345 350  
 Ala Ala Ala Ala Ala Ala Ala Ala Met Ser Leu Gly Pro Met Gly  
 355 360 365  
 45 Ser Val Val Lys Ser Glu Pro Ser Ser Pro Pro Pro Ala Ile Ala Ser  
 370 375 380  
 His Ser Gln Arg Ala Cys Leu Gly Asp Leu Arg Asp Met Ile Ser Met  
 385 390 395 400  
 Tyr Leu Pro Pro Gly Gly Asp Ala Ala Asp Ala Ala Ser Pro Leu Pro  
 405 410 415  
 55 Gly Gly Arg Leu His Gly Val His Gln His Tyr Gln Gly Ala Gly Thr  
 420 425 430



Ala Val Asn Gly Thr Val Pro Leu Thr His Ile  
435 440

<210> 21

5

<211> 276

<212> PRT

10 <213> Homo sapiens

<400> 21

15

Met Ser Lys Pro Val Asp His Val Lys Arg Pro Met Asn Ala Phe Met  
1 5 10 15

Val Trp Ser Arg Ala Gln Arg Arg Lys Met Ala Gln Glu Asn Pro Lys  
20 25 30

20

Met His Asn Ser Glu Ile Ser Lys Arg Leu Gly Ala Glu Trp Lys Leu  
35 40 45

25

Leu Thr Glu Ser Glu Lys Arg Pro Phe Ile Asp Glu Ala Lys Arg Leu  
50 55 60

Arg Ala Met His Met Lys Glu His Pro Asp Tyr Lys Tyr Arg Pro Arg  
65 70 75 80

30

Arg Lys Pro Lys Thr Leu Leu Lys Lys Asp Lys Phe Ala Phe Pro Val  
85 90 95

Pro Tyr Gly Leu Gly Gly Val Ala Asp Ala Glu His Pro Ala Leu Lys  
100 105 110

35

Ala Gly Ala Gly Leu His Ala Gly Ala Gly Gly Gly Leu Val Pro Glu  
115 120 125

40

Ser Leu Leu Ala Asn Pro Glu Lys Ala Ala Ala Ala Ala Ala Ala Ala  
130 135 140

Ala Ala Arg Val Phe Phe Pro Gln Ser Ala Ala Ala Ala Ala Ala Ala  
145 150 155 160

45

Ala Ala Ala Ala Ala Ala Gly Ser Pro Tyr Ser Leu Leu Asp Leu Gly  
165 170 175

Ser Lys Met Ala Glu Ile Ser Ser Ser Ser Ser Gly Leu Pro Tyr Ala  
180 185 190

50

Ser Ser Leu Gly Tyr Pro Thr Ala Gly Ala Gly Ala Phe His Gly Ala  
195 200 205

Ala Ala Ala Ala Ala Ala Ala Ala Ala Ala Ala Gly Gly His Thr His  
210 215 220

55

Ser His Pro Ser Pro Gly Asn Pro Gly Tyr Met Ile Pro Cys Asn Cys  
 225 230 235 240  
 5 Ser Ala Trp Pro Ser Pro Gly Leu Gln Pro Pro Leu Ala Tyr Ile Leu  
 245 250 255  
 Leu Pro Gly Met Gly Lys Pro Gln Leu Asp Pro Tyr Pro Ala Ala Tyr  
 260 265 270  
 10 Ala Ala Ala Leu  
 275  
 <210> 22  
 15 <211> 533  
 <212> PRT  
 <213> Homo sapiens  
 20  
 <400> 22  
 25 Met Leu Leu Asp Ala Gly Pro Gln Phe Pro Ala Ile Gly Val Gly Ser  
 1 5 10 15  
 Phe Ala Arg His His His His Ser Ala Ala Ala Ala Ala Ala Ala  
 20 25 30  
 30 Ala Glu Met Gln Asp Arg Glu Leu Ser Leu Ala Ala Ala Gln Asn Gly  
 35 40 45  
 35 Phe Val Asp Ser Ala Ala Ala His Met Gly Ala Phe Lys Leu Asn Pro  
 50 55 60  
 Gly Ala His Glu Leu Ser Pro Gly Gln Ser Ser Ala Phe Thr Ser Gln  
 65 70 75 80  
 40 Gly Pro Gly Ala Tyr Pro Gly Ser Ala Ala Ala Ala Ala Ala Ala  
 85 90 95  
 Ala Leu Gly Pro His Ala Ala His Val Gly Ser Tyr Ser Gly Pro Pro  
 100 105 110  
 45 Phe Asn Ser Thr Arg Asp Phe Leu Phe Arg Ser Ala Arg Leu Pro Gly  
 115 120 125  
 50 Thr Ser Ala Pro Gly Gly Gly Gln His Gly Leu Phe Gly Pro Gly Ala  
 130 135 140  
 Gly Gly Leu His His Ala His Ser Asp Ala Gln Gly His Leu Leu Phe  
 145 150 155 160  
 55 Pro Gly Leu Pro Glu Gln His Gly Pro His Gly Ser Gln Asn Val Leu  
 165 170 175

Asn Gly Gln Met Arg Leu Gly Leu Pro Gly Glu Val Phe Gly Arg Ser  
 180 185 190  
 5 Glu Gln Tyr Arg Gln Val Ala Ser Pro Arg Thr Asp Pro Tyr Ser Ala  
 195 200 205  
 Ala Gln Leu His Asn Gln Tyr Gly Pro Met Asn Met Asn Met Gly Met  
 210 215 220  
 10 Asn Met Ala Ala Ala Ala Ala His His His His His His His His  
 225 230 235 240  
 Pro Gly Ala Phe Phe Arg Tyr Met Arg Gln Gln Cys Ile Lys Gln Glu  
 245 250 255  
 15 Leu Ile Cys Lys Trp Ile Asp Pro Glu Gln Leu Ser Asn Pro Lys Lys  
 260 265 270  
 20 Ser Cys Asn Lys Thr Phe Ser Thr Met His Glu Leu Val Thr His Val  
 275 280 285  
 Ser Val Glu His Val Gly Gly Pro Glu Gln Ser Asn His Val Cys Phe  
 290 295 300  
 25 Trp Glu Glu Cys Pro Arg Glu Gly Lys Pro Phe Lys Ala Lys Tyr Lys  
 305 310 315 320  
 Leu Val Asn His Ile Arg Val His Thr Gly Glu Lys Pro Phe Pro Cys  
 325 330 335  
 30 Pro Phe Pro Gly Cys Gly Lys Val Phe Ala Arg Ser Glu Asn Leu Lys  
 340 345 350  
 Ile His Lys Arg Thr His Thr Gly Glu Lys Pro Phe Gln Cys Glu Phe  
 355 360 365  
 35 Glu Gly Cys Asp Arg Arg Phe Ala Asn Ser Ser Asp Arg Lys Lys His  
 370 375 380  
 40 Met His Val His Thr Ser Asp Lys Pro Tyr Leu Cys Lys Met Cys Asp  
 385 390 395 400  
 Lys Ser Tyr Thr His Pro Ser Ser Leu Arg Lys His Met Lys Val His  
 405 410 415  
 45 Glu Ser Ser Pro Gln Gly Ser Glu Ser Ser Pro Ala Ala Ser Ser Gly  
 420 425 430  
 Tyr Glu Ser Ser Thr Pro Pro Gly Leu Val Ser Pro Ser Ala Glu Pro  
 435 440 445  
 50 Gln Ser Ser Ser Asn Leu Ser Pro Ala Ala Ala Ala Ala Ala Ala  
 450 455 460  
 55 Ala Ala Ala Ala Ala Ala Ala Val Ser Ala Val His Arg Gly Gly Gly  
 465 470 475 480

Ser Gly Ser Gly Gly Ala Gly Gly Gly Ser Gly Gly Gly Ser Gly Ser  
 485 490 495

B 5 Gly Gly Gly Gly Gly Gly Ala Gly Gly Gly Gly Gly Gly Ser Ser Gly  
 500 505 510

Gly Gly Ser Gly Thr Ala Gly Gly His Ser Gly Leu Ser Ser Asn Phe  
 515 520 525

10 Asn Glu Trp Tyr Val  
 530

---